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MAJOR SURGERY IN PATIENTS OVER SEVENTY YEARS OF AGE.[1]

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FEW, if any, of the verses in the Bible dwell more vividly or more universally in the minds of men than the tenth verse of the ninetieth psalm of David:

> The days of our years are threescore years and ten; and if by reason of strength they be fourscore years, yet is their strength labour and sorrow; for it is soon cut off, and we fly away.

The reason for this is not far to seek. The behaviour of man is largely dictated by instincts, of which one of the most obvious is that of self-preservation, so that he is vitally concerned by any authoritative statement upon the span of life allotted to him. It has, therefore, come to pass that the feat of reaching the age of seventy years is thought to be akin to that of the batsman who compiles one hundred runs. It does not matter much if the end should come then, for the goal has been reached. How often, when surgical operations upon the aged are advised, do we hear the cry: "He is old. He has had a good life. Let him die in peace!" How often have some of us listened to this appeal and have hesitated to advise major surgical procedures upon those of advanced years, forgetting perhaps that, though old men know they have to die, few want to die, and forgetting that, just as the modern cricketer is no longer satisfied with a single century, the modern surgeon is striving to eliminate the term "bad surgical risk" and is no longer content necessarily to include the aged in this category. The use of the adverb "necessarily" in the last sentence is due to the fact that operations undertaken on old people must involve a greater risk than those performed on persons in earlier decades; but the purpose of this paper is to suggest that this risk is not excessive in patients who have exceeded

[1] An address delivered in an open meeting at the Royal Australasian College of Surgeons, Melbourne, August, 1935.

the "allotted span", providing that the surgeon exercises reasonable judgement and skill and that the operation is not delayed too long because of the advanced age of the patient.

The subject will be considered under the following divisions: (i) Material upon which the review is based. (ii) Discussion of the problems involved in the treatment of various groups of diseases. (iii) An analysis of the deaths which occurred in this series. (iv) An account of the survival period after operation. (v) Some general considerations concerning pre- and post-operative treatment. (vi) Conclusions and summary.

Material.

I propose to analyse the results of major surgical operations which I have performed upon ninety-eight patients, of more than seventy years of age, since January 1, 1927. It happened that two of the patients, both octogenarians, had undergone a former major surgical procedure at my hands some years earlier and, therefore, these two operations, which were for other conditions, have been included, thus bringing the total to one hundred major surgical operations. Apart from these two instances, the series is consecutive and, as I have not refused to operate, during this time, upon any aged patient because of the severity either of the disease or of the operation required, the figures given embrace the results of treatment of all patients in the eighth and ninth decades of life who have been referred to me during this period for operative treatment of a major type. Certain cases in which comparatively minor operations, such as suprapubic cystotomy, resection of a portion of rib for empyema and the like, were performed, have been excluded.

Ten of the patients were octogenarians, the remainder being in the eighth decade. There were no dramatic instances of operations upon nonagenarians or patients who have passed the century, though in this connexion I must mention the case of a man, aged ninety, who was successfully operated upon by my colleague, Mr. Julian Smith, Junior, at the Melbourne Hospital, for acute appendicitis. It is also interesting to note that Gordon-Taylor[1] has successfully performed a colostomy for a cancer of the rectum on a woman of ninety-eight who survived for a year, and that he states that the oldest patient successfully operated upon was a woman, aged one hundred and seven, who had a strangulated femoral hernia.

In Table I is summarized the material reviewed in this paper.

It will be seen that the great majority of the conditions which brought the patients to the operating table would have proved fatal in the absence of surgical relief. Thirty-eight patients suffered from malignant disease, fourteen from acute abdominal emergencies, fourteen from severe complications of choleliathiasis and seventeen from prostatic hypertrophy with retention of urine. No excuse is required for amputation for gangrene of the leg due to *thrombo-angiitis obliterans*, nor for division of the sensory root of the fifth nerve in four cases in which the pain had recurred after repeated injections of alcohol. The gastric and duodenal ulcer cases were associated with late complications of this disease, such as obstruction or penetration of the ulcer. In each of the six cases of inguinal hernia, the sac was very large, was of the direct variety, could not be controlled by a truss, and gave rise to such discomfort that operation was eagerly sought by the patients.

Discussion of the Problems Involved in the Various Groups of Diseases.

Stones in the Biliary Tract.

In Table II are analysed the cases in which stones were found in the gall-bladder and, in four of the cases, in the common duct.

The only operative death in this series of fourteen cases was that in Case VIII, the patient being an old lady who suddenly dropped dead when walking out of the hospital on her way to her home. No autopsy was obtained.

Each case presented its individual problem, for, as will be inferred from the meagre details given in the above table, the disease was of long standing in all the patients, but time does not allow me to deal, in more than a general manner, with the lessons to be learnt from this series. My own feeling of responsibility in each instance was made lighter by the knowledge either that the condition would be fatal if unrelieved by operation, or that the patient, often after prolonged unsuccessful medical treatment, had concluded, in desperation, that even death would be preferable to further attacks of colic.

In this condition at any age careful pre-operative preparation, consisting of rest in bed in hospital and the administration of glucose in as large amounts as possible, is of great value. It is sometimes necessary to exercise great patience in waiting for the optimum time for operation, as is shown in the following case:

CASE II, Table II.—The patient, a male, aged seventy years, had very severe biliary colic on November 19, 1934, which lasted for forty-eight hours; it was only partially relieved by three injections of 0·03 gramme (one-half a grain) of morphine. Two days after the onset of the pain there was a profuse hæmatemesis. The patient's temperature was 37·8° C. (100° F.), and some tenderness and rigidity were detected in the right hypochondrium. Jaundice was obvious on the second day. The patient was moved to a hospital, where he developed a bronchopneumonia at the base of the right lung, which was followed by signs of uræmia. The urine was loaded with albumin and the blood urea estimation was 100 milligrammes *per centum*. He was given appropriate medical treatment and slowly improved. The jaundice became barely perceptible and, two weeks after the onset, being terrified by the prospect of another attack of colic, he urged that operation should be performed at once. With some difficulty this was delayed for a further period of ten days, when a thickened adherent gall-bladder was successfully removed. Several small stones were impacted in the cystic duct, so that it is certain that further attacks of colic would have occurred. As there was no sign of a chronic ulcer in the stomach or duodenum, it is probable that the hæmatemesis was due to a toxic erosion. The patient has remained well since the operation.

Though, as has been stated, patience is a virtue in dealing with cases of cholelithiasis in the aged, there are some, associated with an acute empyema of the gall-bladder, in which delay in performing a cholecystectomy may prejudice the final result. As a general rule, this condition subsides and operation can then be performed, but, in old people, if it is

TABLE I.

Disease.	Operation.	Number of Cases.	Deaths.
Cholelithiasis	Cholecystectomy	10	1
Stones in the gall-bladder and common duct	Cholecystectomy and choledochotomy	4	0
Prostatic hypertrophy	Prostatectomy	17	1
Carcinoma of the breast	Radical removal of breast	16	0
Carcinoma of the stomach	(*a*) Gastrectomy	2	0
	(*b*) Gastro-jejunostomy	2	0
Carcinoma of the small intestine	Excision	1	0
Carcinoma of the colon	(*a*) Resection of right half of colon	2	0
	(*b*) Mikulicz's operation	2	0
	(*c*) Paul's operation	1	1
Carcinoma of the pancreas	Cholecyst-gastrostomy	1	0
Gastric and duodenal ulcer	(*a*) Gastrectomy	2	2
	(*b*) Excision of ulcer and gastro-jejunostomy	1	0
	(*c*) Gastro-jejunostomy	2	0
Acute intestinal obstruction	(*a*) Division of band	1	0
	(*b*) Resection of bowel	1	1
Strangulated hernia	Radical cure	3	0
Perforated duodenal ulcer	Suture of perforation	2	0
Acute appendicitis	(*a*) Appendicectomy	5	1
	(*b*) Drainage of abscess	1	1
Torsion of ovarian cyst	Removal of cyst	1	0
Trigeminal neuralgia	Division of sensory root	4	0
Thromboanglitis	Amputation of thigh	2	0
Large inguinal hernia	Radical cure	6	0
Carcinoma of rectum	Colostomy	3	0
Rupture of rectum	Colostomy and drainage	1	0
Tumour of parotid	Excision	1	0
Carcinoma of tongue	Excision of tongue and glands	1	0
Inoperable malignant disease	Abdominal exploration	5	0
Total		100	8

apparent after twenty-four hours' observation that the enlargement of the gall-bladder is progressive and that the patient is being weakened by the pain and toxæmia, I believe that it is better to remove the gall-bladder without further delay. This course was adopted in Cases I, V, VII and XIII in Table II. In this condition the practice of preliminary drainage of an inflamed gall-bladder seems to me to be undesirable and unnecessary in the vast majority of cases. I am probably prejudiced against it because of the fact that in one case in which I drained an acutely inflamed gall-bladder the convalescence was made very eventful by repeated attacks of secondary hæmorrhage from its wall, whereas the results of primary cholecystectomy in my hands have been almost uniformly satisfactory.

Many cases were complicated by the presence of jaundice, and in these it is always desirable to wait for a time to see whether the jaundice will subside, though this delay necessarily carries the risk of the onset of another attack of colic during the waiting period, with subsequent deterioration of the condition of the patient. In cases in which this complication persists it is my practice to give two intravenous injections of five cubic centimetres of 10% calcium chloride on the two days prior to operation, though the risk of post-operative hæmorrhage following operations in cases of cholelithiasis with jaundice is very much less than in cases of biliary obstruction due to carcinoma of the pancreas, owing to the fact that, in the former case, the obstruction can be immediately relieved by a tube inserted in the common duct or the cystic duct at the end of the operation. For this reason I do not regard the presence of jaundice as a necessary contraindication to cholecystectomy.

TABLE II.

Stones in the Biliary Tract.

Patient.	Sex.	Age at Operation.	Condition Found at Operation.	Operation Performed and Date.	Result at July 1, 1935.
I	M.	70	Acute cholecystitis with stones.	Cholecystectomy, April 30, 1930.	Alive and well. Aged 75.
II	M.	70	Cholelithiasis; jaundice and uræmia.	Cholecystectomy, December 14, 1934.	Alive and well. Aged 71.
III	M.	70	Cholelithiasis; painless jaundice.	Cholecystectomy, December 11, 1934.	Alive and well. Aged 71.
IV	F.	70	Stones in gall-bladder and common duct.	Cholecystectomy; choledochotomy; closure of fistula, June 28, 1928.	Died of pneumonia two months later.
V	F.	70	Empyema of gall-bladder.	Cholecystectomy, August 31, 1928.	Alive and well. Aged 77.
VI	M.	72	Cholelithiasis; duodenal ulcer.	Cholecystectomy; ulcer infolded, March 17, 1932.	Alive and well. Aged 75.
VII	F.	74	Empyema of gall-bladder.	Cholecystectomy, June 24, 1927.	Died of other cause, 1929.
VIII	F.	74	Empyema of gall-bladder.	Cholecystectomy, March 19, 1928.	Died suddenly three weeks after operation.
IX	M.	76	Stones in gall-bladder and common duct; cholangitis; diabetes and stones in duct.	Cholecystectomy; choledochotomy, May 5, 1930.	Alive and well. Aged 81.
X	F.	77	Cholelithiasis, with frequent colic and jaundice; diabetes.	Cholecystectomy; choledochotomy, February 2, 1932.	Alive and well. Aged 80.
XI	F.	77	Acute cholecystitis, with stones.	Cholecystectomy, May 17, 1935.	Alive and well. Aged 77.
XII	F.	78	Stones in gall-bladder and common duct; jaundice.	Cholecystectomy; choledochotomy, July 10, 1928.	Alive and well. Aged 85.
XIII	F.	80	Empyema of gall-bladder.	Cholecystectomy, May 15, 1925.	Alive and well. Aged 90.
XIV	F.	80	Cholelithiasis; frequent severe colic.	Cholecystectomy, December 7, 1932.	Alive and well. Aged 83.

In two cases the problem was complicated by the presence of diabetes. The pre-operative preparation of a diabetic consists in the free administration of carbohydrates together with enough insulin to keep the urine sugar-free for a minimum period of three days prior to operation. This complication necessarily demands cooperation with a physician and, in the following case, as in many others of similar type, I was fortunate enough to be associated with Dr. J. R. Bell, who controlled the pre- and post-operative treatment from the diabetic standpoint.

CASE IX, Table II.—A male, aged seventy-six years, had had frequent attacks of gall-stone colic for nineteen years. For the last four years the attacks of pain had been associated with rigors, high temperature and intermittent jaundice, the typical "Charcot's hepatic fever". The patient was a true diabetic, and had steadfastly refused operative treatment until he at last realized that he would die unless this was undertaken. After admission to hospital he was given a readily absorbable diet containing between 150 and 180 grammes of carbohydrate, in other words, the free administration of cereals and fruit juices, together with enough insulin to keep the urine sugar-free, for five days prior to operation. A large stone was removed from the common duct and a small thick adherent gall-bladder was excised. There was abundant evidence on the surface of the liver of the presence of a suppurative cholangitis. The common duct was drained after dilatation of the ampulla. While the abdomen was being closed, the patient was given an intravenous injection of 500 cubic centimetres of saline solution containing 50 grammes of anhydrous glucose and 30 units of insulin. There was evidence of acidosis and cholæmia for a week after operation, but the patient then improved, and, today, at the age of eighty-one, is leading a happy and comparatively active life.

The details of operative technique in the aged differ from those adopted in younger people only in that, as the factor of safety is smaller, the surgeon must be careful to insure that, as far as possible, there will be no complications during convalescence. This necessarily entails a free exposure of the area. It is my usual practice to employ a right vertical rectus-reflecting incision to expose the biliary tract, but this incision has the disadvantage that painful spasm of the rectus muscle is apt to occur during the first twenty-four hours, more particularly when the patient is urged to cough up any bronchial secretion. On the advice of my friend Mr. Gordon-Taylor, I have recently used Kocher's incision for this operation in old people, and have found that there is less post-operative pain and, therefore, greater ease in coughing up secretion, a point of great importance in the prevention of pulmonary atelectasis.

It is usual to find, in old-standing cases, that the gall-bladder is very adherent to surrounding structures, but this complication should present no difficulty if the surgeon divides the adhesions strictly along the plane of the inferior or abdominal aspect of the gall-bladder. A fistulous communication with the duodenum can be readily divided and repaired during this procedure, as in Case IV, Table II. When common duct stones are present it is better to remove them before doing a cholecystectomy, for after the duct is opened its course upwards to the liver can be defined by a sound, a more rapid and safe removal of the gall-bladder being thus made possible. In any operation on the biliary tract the greatest care must be taken to avoid injury to the common duct, which is a most serious accident, for few patients survive many years, even after successful operative reconstruction of the duct.

Prostatic Hypertrophy.

The ages of the patients treated by prostatectomy are shown in Table III.

TABLE III.

Ages.	Number of Cases.	Deaths.
70	4	0
71	3	0
73	2	1
74	2	0
75	2	0
76	1	0
79	1	0
80	1	0
85	1	0

All these patients were admitted to hospital only after complete retention of urine had occurred, in some instances on several occasions. Urinary infection was present, prior to operation, in all but four cases.

One patient, a diabetic, aged seventy-three years, whose bladder had been drained by an indwelling suprapubic catheter for some months because he was thought to be too bad a risk for prostatectomy, found that this method was intolerable, and begged to have the prostate removed. Unhappily, death followed operation.

The remaining sixteen patients recovered, though it is only fair to state that, during this series, three other patients were treated by a permanent suprapubic drainage, as it was considered undesirable to risk prostatectomy in them. One of these patients who, incredible as it may appear, had been treated for flatulence for six months owing to abdominal distension caused by an overfull bladder, died of uræmia one week after suprapubic cystostomy, which had been preceded by careful slow decompression.

In view of the bad condition of the patients on admission, no attempt was made to drain the bladder by an indwelling urethral catheter, a two stage operation being performed on every patient. The first stage consisted in a suprapubic incision into the bladder, which was sutured tightly round an indwelling self-retaining catheter so that a water-tight junction was made. This operation is performed under local anæsthesia and is, in my opinion, much superior to the alternative step of introducing the catheter through the hole made by the introduction of a large trocar, as it enables the surgeon not only to achieve hæmostasis, but also to determine the nature of the prostatic enlargement at the first stage. It is also easy to remove phosphatic stones, which are not infrequently present, a step which assists in getting the bladder clean for the second stage. A bilateral occlusion of the vas is also achieved at this time by passing a silkworm gut suture deep to it at the back of the scrotum and leaving it tied under the vas and over the superimposed skin for seven days. This simple method, advised by Harris,[2] prevents the occurrence of acute epididymitis, a condition which is poorly withstood by aged patients.

The second stage consists in removal of the gland, and was performed at various times after the institution of suprapubic drainage. The optimum time for prostatectomy is best determined by the clinical sense of the surgeon, though the usual tests of renal function are of some value. It is not necessary to wait for four weeks after opening the bladder, as Harris[2] suggests, before performing the second stage, unless primary closure of the bladder is desired. In some of the cases it was necessary to wait for a long period of months prior to enucleation of the prostate, and it is noteworthy that, after this delay, the gland diminished considerably in size and could usually be enucleated with very little hæmorrhage. In the earlier cases in the series the prostate was rapidly enucleated under ethylene anæsthesia and hæmorrhage was controlled, if necessary, by a gauze pack, which was removed in twenty-four hours. This method has the disadvantage that bleeding may recur after removal of the pack, and that secondary hæmorrhage about the twelfth day was not uncommon. The alternative of using a Pilcher bag was not attempted in any of these patients because I found that, in my hands, it occasioned great pain from spasmodic attempts of the bladder to expel it. Since the adoption of the Harris[2] technique, with the modification that the bladder is invariably drained suprapubically by a self-retaining catheter for a few days in addition to the urethral drainage, the convalescence of these patients has been smooth and uneventful.

One case is of interest because a large diverticulum of the bladder, springing from the region of the right ureteric orifice and measuring 12·5 centimetres (five inches) in diameter, was removed at the same time as the prostate at the second stage. In order to obtain access to the diverticulum, the bladder is swung forwards, a step which is impeded by the close adhesion of the peritoneum to its superior surface. This difficulty can be overcome if a lozenge-shaped area of peritoneum is left adherent to the bladder. Around this adherent area the peritoneum is very loosely attached, so that, by introducing the finger round each side of the bladder in turn, it is easy to sweep it upwards until the area of close attachment is reached. The peritoneum is then divided with scissors round the margins of this area, and the gap thus left in the peritoneal lining of the abdominal cavity is closed by sutures. The bladder can then be pulled forwards and the diverticulum exposed and removed. In this case the prostate was then enucleated by the Harris technique, and the patient, who was seventy years of age, made an uninterrupted recovery.

Carcinoma of the Breast.

Table IV shows the age of the sixteen patients in whom a radical removal of the breast for carcinoma was performed.

There were no operative deaths in this series. All the patients had the usual type of schirrous carcinoma of the breast, there being no cases of atrophic schirrus, a condition in which, in very old people, the necessity for operation is debatable. The series is small, and extends over a short period, so that little value is attachable to an analysis of the results. Two patients have died of metastases and another, eight years after operation, from other causes. The remainder are alive today and are free of demonstrable recurrence.

TABLE IV.

Ages.	Number of Cases.
70	5
71	1
72	3
73	1
75	2
76	2
81	1
82	1

One old lady, aged eighty-two, also figures in the gall-bladder list, for she underwent a cholecystectomy at the age of eighty. In an attempt to cheer her up when informing her that she must face a second operation, I promised her a bottle of champagne on her ninetieth birthday, and gladly paid my debt last January.

It seems obvious that it is worth while performing a radical removal of the breast for carcinoma even in very old patients, for little risk attaches to the operation, and the prospects of cure are probably better than in younger people.

There is little to say of technical details except that, as in younger patients, the axilla should be dissected first, if only for the reason that this procedure avoids shock from exposure for any length of time of the raw area left after removal of the breast. When, towards the end of the operation, the assistant holds the breast towards the opposite side in order to allow the surgeon to divide the sternal attachment of the *pectoralis major*, he should be warned to avoid pulling too hard lest one of the perforating vessels, naturally more brittle in the aged, should be torn. If this accident should happen, the end of the vessel may retract into the intercostal space and a pneumothorax may follow attempts to secure it.

Abdominal Carcinoma.

There were nineteen cases of abdominal carcinoma. Resection of the growth was performed in eight cases, a palliative operation in six, and in the remaining five cases abdominal exploration demonstrated the impossibility of doing anything to relieve the patient. There were no operative deaths among the patients in the last group of five inoperable cases; though not subjected, strictly speaking, to a major operation, these patients are included in this series in order to indicate the high percentage of the total cases of abdominal carcinoma in the aged in which it was possible to help the patient by operation. Three of the patients whose condition was inoperable suffered from gastric carcinoma, one from carcinoma of the gall-bladder, and one from carcinoma of the colon.

In Table V are summarized those cases in which curative or palliative operations were performed.

I had lost sight of Patient I for some years, and was overjoyed when, a few months ago, she walked into my room complaining bitterly of an inflamed bunion. There was no sign of recurrence of the gastric carcinoma. Though the post-operative outlook is considered less hopeful in gastric carcinoma than in

TABLE V.
Abdominal Carcinoma.

Patient.	Sex.	Age at Operation.	Condition Found at Operation.	Operation Performed and Date.	Result, July, 1935.
I	F.	72	Pyloric carcinoma, some glands.	Gastrectomy, November 11, 1929.	Alive and well. Aged 78.
II	M.	70	Gastric carcinoma at incisura.	Gastrectomy, November 26, 1931.	Died of recurrence in 1934.
III	M.	71	Inoperable gastric carcinoma, with obstruction.	Posterior gastro-jejunostomy, August 16, 1928.	Died in one year.
IV	M.	70	Inoperable gastric carcinoma, with obstruction.	Posterior gastro-jejunostomy, July 21, 1932.	Died in eighteen months.
V	M.	75	Carcinoma of jejunum.	Resection, end-to-end anastomosis, February 17, 1931.	Alive and well. Aged 80.
VI	M.	71	Carcinoma of ascending colon, some obstruction.	One-stage resection of right half of colon, March 2, 1933.	Alive and well. Aged 74.
VII	F.	80	Carcinoma of hepatic flexure.	One-stage resection of right half of colon, February 12, 1934.	Alive and well. Aged 81.
VIII	F.	70	Carcinoma of transverse colon near splenic flexure.	Resection by Mikulicz's method, April 17, 1930.	Alive and well. Aged 76.
IX	F.	70	Carcinoma of sigmoid colon.	Resection by Mikulicz's method, April 23, 1928.	Died of recurrence in three years.
X	M.	70	Carcinoma of sigmoid colon.	Resection by Paul's method, July 22, 1927.	Operative death.
XI	M.	72	Inoperable carcinoma of rectum.	Colostomy, June 12, 1929.	Died in one year.
XII	M.	16	Inoperable carcinoma of rectum.	Colostomy, November 3, 1932.	Died in one year.
XIII	F.	70	Inoperable carcinoma of rectum.	Colostomy, May 3, 1932.	Still alive. Aged 73.
XIV	M.	73	Carcinoma of head of pancreas.	Cholecyst-gastrostomy, April 9, 1933.	Died in fifteen months.

many other growths, it is by no means hopeless. I have six patients, in a comparatively small series of gastrectomies for this condition, who have survived for five years or longer.

FIGURE I.
External appearance of carcinoma of jejunum. (Case V, Table V.)
(From *The Australian and New Zealand Journal of Surgery.*)

The case of carcinoma of the jejunum has already been reported,[3] and is notable for the fact that the diagnosis was made prior to operation. (See Figures I and II.)

It will be noted that Patients VI and VII, Table V, survived a one-stage removal of the right side of the colon, despite the fact that some obstruction complicated Case VI, and that Patient VII was eighty

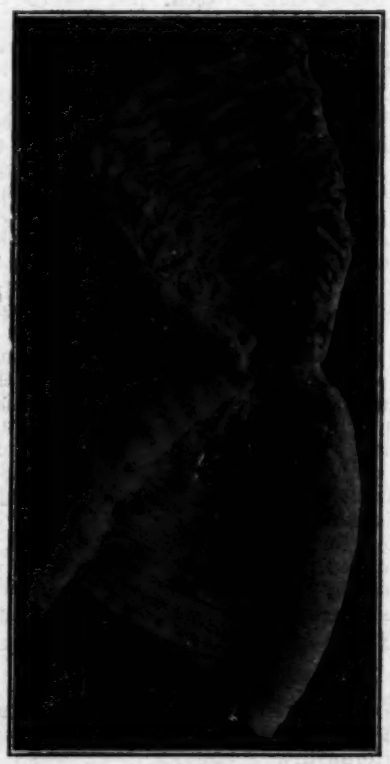

FIGURE II.
Internal appearance of carcinoma of jejunum. (Case V, Table V.)
(From *The Australian and New Zealand Journal of Surgery.*)

years of age. H. B. Devine[4] has advised that, in bad surgical risks, a carcinoma of the right half of the colon should be treated by his modification of

Mikulicz's method, the whole right half of the colon being drawn out of the wound, and continuity eventually being established by means of a crushing clamp applied through the wound to the opposed walls of the terminal part of the ileum and the transverse colon. I am not convinced of the desirability of this method, particularly in view of the fact that, if obstruction should occur at the site of the anastomosis between the terminal part of the ileum and the transverse colon in the first few days after a one-stage operation, it can be readily and simply relieved by an ileostomy under local anæsthesia. I have not, as yet, been compelled to perform an ileostomy after resection of the right half of the colon for carcinoma, though I have resorted to it in one case of extensive resection of the ascending and the transverse colon for hyperplastic tuberculosis.

In cases of carcinoma of the left half of the colon the operation must be staged, and there is no doubt that Mikulicz's modification of Paul's operation is the safest procedure in old people. In an early case, number X, Table V, I performed the original Paul operation, removing the growth and tying a Paul's tube into each end of the sigmoid colon. The wound became infected, and the patient died of a peritonitis which spread from this area.

It is well worth while to perform a colostomy in the presence of an inoperable carcinoma of the rectum in the aged. Patient XIII, Table V, is still alive three years after operation, and I have personal knowledge of another old woman who survived for eighteen years after a palliative colostomy had been performed for a carcinoma of the rectum, of which the diagnosis was verified by microscopic examination.

Acute Abdominal Emergencies.

Table VI gives the incidence of various acute abdominal conditions.

The surgical treatment of an acute abdominal emergency in old age does not differ materially from that adopted in younger people, except that the time factor is even more important. In this series operation was unduly delayed, on medical advice on account of the patient's age, in Case IV, female, aged eighty, and Case V, male, aged seventy-eight, with fatal consequences. In the first case, one of intestinal obstruction from a band, a doctor relative finally insisted that operation should be performed, while in the second the patient, realizing that he was not being allowed to die in peace, but in great suffering consequent upon the rupture of a localized appendiceal abscess into the abdominal cavity, demanded that he should be sent to hospital. If the patient aged eighty had been operated upon without delay, there is no reason why she should not have done as well as Patient III, Table VI, who at the time of operation for a similar disease was seventy-nine, and is now aged eighty-two.

The patients suffering from acute appendicitis did not conform to the anomalous type, described by Lewin[5] as characteristic of this disease in old age, in which the onset resembles that of an intestinal obstruction. The onset was fairly typical in all cases, with the exception of Case VII, that of a male aged eighty-three, in whom the presence of a large right inguinal hernial sac, which became swollen and tense as the peritoneal inflammation spread into it, led to the erroneous diagnosis of a strangulated hernia. In contradistinction to Lewin's cases, the disease spread rapidly in the majority of the cases in this series, and it is interesting to note that the appendix was ruptured in every case. No patient was operated upon during the first twenty-four hours, which is probably due to the fact that, owing to the advanced age of the patients, there was a natural, but misguided, desire on the part of the medical attendant to wait for a time in the hope that the symptoms would subside. One fatal case was due, as has been stated, to the rupture of a localized abscess, while in the other, that of a medical man, grave anxiety was aroused at the operation by the presence of quantities of pus in the peritoneal cavity without the slightest trace of localizing lymph formation, an indication, unhappily confirmed by the result, that the resistance of the patient was at a low level.

TABLE VI.
Acute Abdominal Emergencies.

Patient.	Sex.	Age at Operation.	Condition Found at Operation.	Operation Performed and Date.	Result, July, 1935.
I	M.	72	Perforated duodenal ulcer, eight hours.	Suture and drainage, August 25, 1930.	Alive and well. Aged 75.
II	M.	76	Perforated duodenal ulcer, twelve hours.	Suture and drainage, May 3, 1933.	Alive and well. Aged 78.
III	F.	79	Intestinal obstruction from band, twelve hours.	Division of band, May 18, 1932.	Alive and well. Aged 82.
IV	F.	80	Intestinal obstruction from band, three days.	Resection gangrenous bowel, November 27, 1927.	Operative death.
V	M.	78	Appendicitis, abscess and peritonitis, fourteen days' duration.	Drainage, October 16, 1929.	Operative death.
VI	F.	73	Gangrenous appendix with peritonitis, three days.	Appendicectomy and drainage, January 2, 1929.	Died of other cause, 1935.
VII	M.	83	Gangrenous appendix with peritonitis, two days.	Appendicectomy and drainage, November 17, 1931.	Alive and well. Aged 87.
VIII	M.	72	Appendicitis with abscess, fourteen days.	Drainage, March 31, 1927.	Well for five and a half years, now crippled by stroke. Aged 80.
IX	M.	71	Appendicitis with peritonitis, thirty-six hours.	Appendicectomy and drainage, March 26, 1935.	Operative death.
X	M.	80	Appendicitis with peritonitis, thirty-six hours.	Appendicectomy and drainage, March 29, 1935.	Alive and well. Aged 80.
XI	M.	71	Strangulated inguinal hernia, nine hours.	Radical cure, November 2, 1930.	Died of other cause, 1934.
XII	M.	72	Strangulated inguinal hernia, twenty-four hours.	Radical cure, December 5, 1933.	Alive and well. Aged 74.
XIII	M.	72	Strangulated inguinal hernia, ten hours.	Radical cure, April 5, 1935.	Alive and well. Aged 72.
XIV	F.	71	Torsion of ovarian cyst, three days.	Removal of cyst, February 20, 1930.	Alive and well. Aged 76.

Gastric and Duodenal Ulcers.

It is regrettable to report that there were two deaths in five patients suffering from ulceration of the stomach or the duodenum. The results are summarized in Table VII.

TABLE VII.

Chronic Ulcers of Stomach and Duodenum.

Patient.	Sex.	Age at Operation.	Condition Found at Operation.	Operation Performed, and Date.	Result, July, 1935.
I	F.	73	Penetrating ulcer of stomach invading pancreas.	Gastrectomy, May 14, 1930.	Operative death.
II	M.	70	Chronic ulcer of pylorus mistaken for carcinoma.	Gastrectomy, June 15, 1931.	Operative death.
III	F.	74	Chronic ulcer high on lesser curve, penetrating liver.	Excision of ulcer; posterior gastro-jejunostomy, October 26, 1934.	Alive and well. Aged 75.
IV	M.	70	Duodenal ulcer, pyloric obstruction.	Posterior gastro-jejunostomy, June 18, 1931.	Alive and well. Aged 74.
V	M.	74	Duodenal ulcer, pyloric obstruction.	Posterior gastro-jejunostomy, November 28, 1933.	Alive and well. Aged 76.

The two operative deaths followed the operation of partial gastrectomy in the two cases in which this operation was performed. In each case autopsy revealed that death was due to bronchopneumonia, and occurred, in Case I, three days and, in Case II, five days after operation. The suture lines were intact in each case, and there was no evidence of any complication due to defects in the operative technique. These two patients were operated upon in a public hospital and were, therefore, unable to benefit from the individual post-operative nursing attention which was given in a private hospital to the two patients in whom the same operation was performed successfully for carcinoma of the stomach (see Table V), and which is so important in the prevention of post-operative lung complications. These deaths must, therefore, be attributed to errors in surgical judgement in performing such an extensive operation under these conditions.

The remaining three cases require no special comment, except that local anæsthesia was employed for the two patients suffering from pyloric stenosis in order to minimize the risk of inhalation pneumonia which is especially liable to occur in this condition.

Direct Inguinal Hernia.

Six patients suffered from direct inguinal hernia, at ages between seventy-one and seventy-four, and in all of them the rupture gave rise to considerable discomfort, owing to the fact that it was too large to be controlled satisfactorily by a truss. The best means of operative cure of this condition is a matter for constant debate amongst surgeons, which is sufficient proof that recurrence after operation is not infrequent. My practice has been to make a free exposure of the area and, after defining the sac and separating the bladder from its inner aspect, to remove the redundant portion of peritoneum which has been pushed out to form the sac. In contradistinction to an oblique hernia, the complete removal of the sac is not an essential part of the technique in the direct variety. The cord is then held out of the way by a loop of gauze, and the conjoined tendon is sutured to the deep aspect of Poupart's ligament by interrupted sutures of chromicized gut. This suture line is then reinforced by an aponeurotic suture fashioned from the upper border of the incision in the external oblique aponeurosis. This aponeurotic strip is left attached at its inner end and the outer end, threaded on a Gallie needle, is passed through conjoined tendon and Poupart's ligament several times. The external oblique aponeurosis is then sutured deep to the cord, which is brought out into the subcutaneous tissue through the external oblique immediately opposite the internal ring. This procedure insures that a firm barrier of tissue is formed to guard the weak area through which a direct hernia passes and, in this series of cases, has not been followed by a recurrence of the condition. (See Figures III, IV and V.)

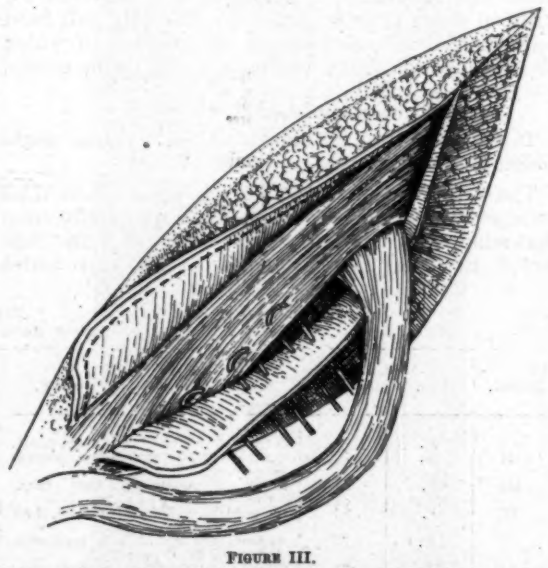

FIGURE III.

Mattress sutures of chromicized catgut uniting the conjoined tendon to the deep aspect of Poupart's ligament.

Miscellaneous Cases.

There were four cases of division of the sensory root of the fifth cranial nerve for *tic douloureux*, in patients aged seventy-one, seventy-two, seventy-three and eighty; two cases of amputation of the thigh for gangrene due to *thromboangiitis obliterans* in patients aged seventy-two and seventy-three; one case of excision of the tongue and cervical glands

for carcinoma at the age of seventy-six, and one case of removal of a large mixed tumour of the parotid gland at the age of seventy-one. There were no operative deaths in these cases, but the carcinoma of the tongue recurred in two years. The octogenarian, who survived an operation for division of the sensory root of the fifth nerve, lived in great comfort for a further period of seven years.

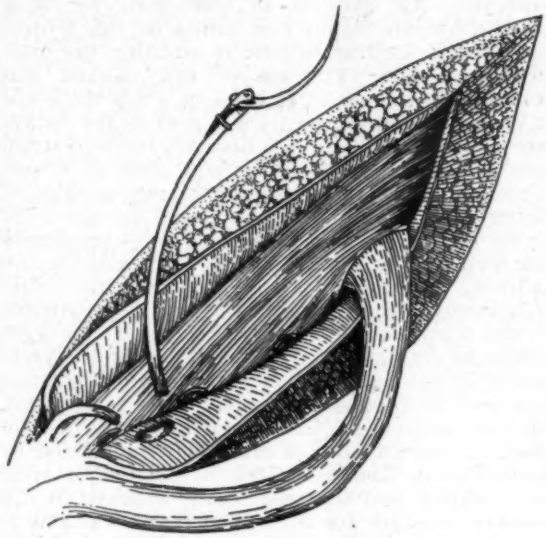

FIGURE IV.

An aponeurotic suture, fashioned from the upper free margin of the incision in the external oblique aponeurosis, left attached at its inner end, being passed through the conjoined tendon and Poupart's ligament to reinforce this area.

The last case, that of a female aged seventy, is of some interest.

In this case the rectum was ruptured by the bone nozzle of a Higginson syringe which was being used to inject a milk and treacle enema. Half a pint of milk and treacle was injected into the pararectal tissues with the result that extensive sloughing occurred. The patient recovered after free incisions had been made in the ischio-rectal fossa and a temporary sigmoid colostomy had been established, though, as might be expected, her convalescence was stormy.

It is unnecessary to state that this instrument belongs to the dark ages of nursing history and should never be employed for the administration of enemata.

Analysis of Deaths.

The death rate in this series of one hundred major operations was 8%. Reference has been made, in the description of the various groups of diseases, to the deaths which occurred in each group, but, as failures are always more instructive than successes, I propose again to review the cause of death in the eight fatal cases in the series. Table VIII summarizes these cases.

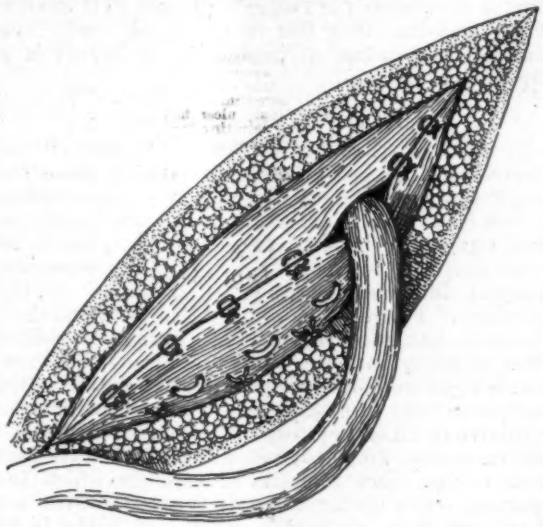

FIGURE V.

The external oblique aponeurosis sutured deep to the cord which has been brought out through the external oblique opposite to the internal abdominal ring.

Two deaths were undoubtedly due to delay on the part of the patient's medical adviser who, in each case, decided that the patient was too old to withstand operative measures. The main purpose of this paper is to correct this impression.

Four deaths were due to errors in the choice of operation or in the conduct of the after-treatment. In Case II, Table VIII, the house surgeon failed, for some hours, to report the fact that hæmorrhage had followed the removal of a gauze pack inserted at the time of operation into the prostatic cavity. The patient, a diabetic, lost a quantity of blood and died of uræmia two days later. The introduction of the Harris technique has decreased the fear of a repetition

TABLE VIII.

Deaths.

Patient.	Sex.	Age.	Operation.	Cause of Death.	Remarks.
I	F.	74	Cholecystectomy.	Sudden death when leaving hospital, no autopsy.	Probably unavoidable.
II	M.	73	Prostatectomy.	Death from hæmorrhage and uræmia.	Bad after-treatment.
III	F.	80	Intestinal obstruction, gangrenous bowel resected.	Death from peritonitis and toxæmia.	Delay in advising operation.
IV	M.	78	Peritonitis from ruptured appendix abscess, drainage.	Death from peritonitis.	Delay in advising operation.
V	M.	71	Appendicectomy, ruptured appendix with peritonitis.	Death from toxæmia.	Delay in seeking treatment, no power of resistance.
VI	M.	70	Resection of sigmoid cancer by Paul's method.	Death from peritonitis.	Bad choice of operative method.
VII	M.	79	Gastrectomy for chronic ulcer.	Bronchopneumonia.	Bad surgical judgement, bad after-care.
VIII	F.	73	Gastrectomy for chronic ulcer.	Bronchopneumonia.	Bad surgical judgement, bad after-care.

of this accident. There is no doubt in my mind that Patient V, Table VIII, would have survived had I adopted the Mikulicz technique, for some sloughing of the bowel wall occurred where the glass Paul's tubes were tied in, and infection spread rapidly in every direction. The incidence of bronchopneumonia depends very largely upon the care which can be given to the patient in the first few days after operation and, as has been stated, it was an error to remove the stomach in Patients VII and VIII in view of the fact that they had to be nursed under the conditions prevailing at present in the wards of a large public hospital.

Survival Time after Operation.

It might be thought, at first sight, that all the trouble and anxiety involved in piloting these old people through a serious operation is so much labour in vain because their expectation of life can be, at the best, but a year or two. In point of fact, this is by no means true, for many patients in this series are enjoying life many years after the time of the operation. I have traced every patient, and find that, of all the patients operated upon during the period 1927 to 1935, only thirty-two are dead. Of these deaths eight were operative deaths, five patients died from recurrence of malignant disease, ten in whom a palliative or an exploratory operation was performed for this disease are dead, and nine patients have died from causes other than the disease for which the operation was performed. Sixty-six patients are alive, and most of them are well. If Table II be reviewed from this aspect, it will be seen that the aggregate post-operative gain in life in this series of fourteen cases of cholelithiasis is fifty years. A similar state of affairs prevails in most of the other groups of diseases. Nor must it be thought that these survivors are mere cumberers of the earth. When, for example, I asked her doctor about the present state of Patient XII, Table II, a female aged seventy-eight at the time of operation for cholecystectomy and choledochotomy, he informed me that, though aged eighty-five, she was very well, and was still "running the whole family", an occupation which may account for her longevity.

General Considerations Concerning Management of the Aged Surgical Patient.

The management of an aged patient who must undergo a major surgical operation does not differ materially from that appropriate in younger people, though it is obvious that, owing to the physiological degeneration of all the organs, the margin of safety is smaller in the aged, and an error of judgement is followed by a swifter and more drastic penalty. A pre-operative rest of some days in hospital, if possible, is of great value because, during this time, a diet rich in carbohydrates can be administered and those responsible for nursing the patient can win his confidence and inspire him with hope. The surgeon must select the optimum time for operation in each individual case, and frequently must exercise great patience before deciding that the best time for operation has arrived. During this time, and indeed throughout his illness, it is of the greatest importance to keep the patient in a mood of cheerful optimism, a task which, fortunately, is less difficult in surgical than in medical diseases of the aged, and which must be accomplished by means varying with the psychological make-up of each individual. There must never be any suggestion that the advanced age of the patient increases the risk of operation.

There is considerable difference of opinion concerning the question of anæsthesia for aged patients, but the majority of writers on this subject suggest that local anæsthesia is probably the most suitable method. The use of this method was restricted, in this series, to cases in which there was an obvious indication for its use, such as the radical cure of hernia, in which it is desirable to avoid strain from post-operative vomiting, and cases of pyloric stenosis in which there is a risk of regurgitation of gastric contents into the respiratory passages. In all the other cases some form of general anæsthesia was used and, with the possible exception of two patients who died of bronchopneumonia after gastrectomy, none of the deaths can be attributed to the anæsthetic. The best anæsthetic for aged people, in my opinion, is nitrous oxide and oxygen, but in abdominal cases in which more relaxation than can be produced by these gases is required, ethylene and oxygen can be safely substituted for them. These anæsthetics must be administered by one skilled in their use, for it is essential to avoid any cyanosis, and the good results obtained in this series of cases are due to the fact that I was able to cooperate with Dr. F. W. Green and Dr. G. L. Lillies as anæsthetists. It is important to remember that undue roughness on the part of the surgeon will abolish any prospect of satisfactory relaxation in abdominal operations performed under ethylene anæsthesia. Most anæsthetic troubles are due to the anæsthetist or the surgeon rather than to the particular drug employed, and in this connexion it is interesting to note that ether which was given by the intratracheal method to all patients in whom the prostate was removed by the Harris method, proved quite satisfactory.

In the performance of the operation, gentleness and care are essential, and it is therefore obvious that the best results are obtained if the surgeon is working on familiar ground in a well-equipped hospital and is assisted by a team accustomed to his work. It is equally desirable that the surgeon should conduct the after-treatment himself.

After operation the patient must be kept warm, rectal salines must be administered, and as soon as possible food in fluid and semi-solid form should be given. In point of fact, the only variation in the usual methods of post-operative treatment which is necessary in aged patients is that greater care should be exercised in the use of sedatives, because both the primary and, owing to deficient powers of elimination, the secondary effects of these drugs are more pronounced. Morphine should be given, when necessary, in small doses, and should be combined with atropine. Sedatives of the barbiturate group should be given with caution, because the use of these drugs is often followed by mental confusion for a day or two, and this makes it difficult to secure

the cooperation of the patient in the after-treatment. In my experience small doses of a phenacetin and aspirin mixture constitute the best soporific.

Post-operative pneumonia, when occurring in the first few days after operation, is due to pulmonary atelectasis. The occurrence of this condition is not the fault of the anæsthetist, but is often due to bad judgement on the part of the surgeon or to unskilful post-operative nursing. As Turnbull[6] has shown, the problems in the prevention of atelectasis include: the avoidance, if possible, of operation in the presence of bronchitis or excessive bronchial secretion; protection of the patient from chills and draughts in the operating theatre, the ward and the passage between them; and, finally, securing full deep respiratory movement, particularly in the first few days after operation. The injection of morphine facilitates coughing by relieving wound pain, and thus aids in the prevention of pneumonia. A skilful nurse is also of the greatest value in the prevention of this condition. Like the virtuous woman, "her price is above rubies". She will encourage the patient to take deep breaths, and to cough up any bronchial secretion. She will assist him in these efforts by supporting the abdominal wall with her hand and by moving him from time to time into a more comfortable position.

In place of texts, such as "Vain is the help of man", which may be seen on the walls of hospitals conducted by some religious orders, I should prefer to see the simple notice: "Cough it up. Even if it hurts you, cough!" The efforts of the patient and the nurse should be assisted by the inhalation of carbon dioxide for five minutes every hour, except when the patient is asleep, during the first two days after operation and, in some cases, by the subcutaneous injection of "Coramine". It is preferable to give 30% or even pure carbon dioxide by the tube and funnel method than the usual 10% in oxygen mixture, which is ineffective unless it be administered under a tent, a contrivance resented by many patients. Another step of great importance is the alteration of posture of the patient, even to the extent of placing him flat in bed for a time and raising the foot of the bed on blocks in order to aid his expulsive efforts by the force of gravity. In this series there were only two cases of post-operative pneumonia, both were fatal, and both patients were treated under conditions precluding that skilled post-operative nursing attention which, as has been explained, is essential.

Post-operative thrombosis and infarction are surgical bugbears and, in this series, there were two cases of pulmonary infarction, one of femoral thrombosis and, in the case of the patient who died suddenly when walking out of hospital, one death possibly due to an embolus. The occurrence of thrombosis can best be prevented by movement, and every patient should be instructed to move the lower limbs up and down, imitating the motions of riding a bicycle, several times every day. Bankoff[7] has recently suggested that the injection of 0·015 gramme (one quarter of a grain) of "Ephetonin" together with 0·43 milligramme (one-one hundred and fiftieth of a grain) of atropine on the fifth, seventh and ninth days after operation, is of value in preventing post-operative thrombosis, a method which seems worthy of a trial.

No attempt was made, in this series, to get the patients out of bed at a time earlier than that customary with younger patients. Thewlis[8] states that all senile patients fail rapidly while in bed and that, in consequence, his post-operative patients are in a chair the day after operation. In his opinion, these patients believe that they will recover if they are allowed to get out of bed. It has been my experience that hope can be instilled after operation by less radical measures and that, in consequence, there is no necessity needlessly to harass the aged by getting them out of bed before the wound has healed.

Conclusions.

Though the performance of major operations in patients advanced in years must cause the surgeon great anxiety, and though the margin of safety is decreased in the aged, the results obtained in this series lend some support to the dictum that "age is no bar to surgical operations", and that there is little justification for withholding the benefit of surgical treatment from those in need of it solely on the score of their advanced years. In many cases, for this reason, the technical difficulties were increased by delay in advising operation, and two deaths are directly attributable to this cause. It is regrettable that eight deaths occurred, and, after making this review of my cases, I am left with the salutary reflection that, in other hands, the mortality might have been considerably decreased. I hope, nevertheless, that even these results will lead others to advise their aged patients to undergo operative treatment as soon as the need for it becomes apparent.

Summary.

1. The results of one hundred major operations, performed upon patients over seventy years of age, are reported.

2. The main groups of diseases were cholelithiasis, carcinoma of the breast, hypertrophy of the prostate, abdominal carcinomata, acute abdominal emergencies, direct inguinal herniæ, and various miscellaneous diseases.

3. Problems relating to the surgical management of each of these groups are reviewed. The pre-operative and post-operative treatment of aged patients is discussed.

4. There were eight deaths in the series.

5. Sixty-six patients are alive and well at periods from a few months to ten years after the date of operation.

6. It is suggested that the age factor should not be given undue consideration when operative measures are necessary.

Acknowledgement.

I am grateful to Professor F. Wood Jones for the drawings illustrating the technique of the radical cure of direct hernia.

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THE TREATMENT OF TETANUS: EXPERIENCES AT THE ROYAL ALEXANDRA HOSPITAL FOR CHILDREN, SYDNEY.

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KNOWLEDGE of tetanus is ages old. It was well known in the time of Hippocrates, and was accurately described by Arætæus, Galen and other early practitioners of medicine.(1) Its modern history commences in 1880, when Sterberg produced the disease in a rabbit by injecting it with mud from a street gutter.(2) In 1884 Carle and Rattone conveyed it by inoculating pus from a wound in a case of tetanus. In 1884 Nicolaier, of Göttingen, reported that injection of soil from fields, meadows and woods produced sometimes nothing, sometimes malignant œdema and sometimes tetanus. In tetanus wounds he found many bacilli, amongst them a slender form to which he gave the name *Bacillus tetani*, but he makes no mention of the terminal spore. He grew impure cultures in the depth of his media, but did not succeed in separating the bacillus. Similarly, Rosenbach at Göttingen (1886) performed many experiments with material from a tetanus case, and recognized the pin or drumstick form as due to a terminal spore; but he also failed to obtain pure cultures. Purification was achieved by Kitasato, working at Berlin (1889); he produced tetanus with his pure anaerobic cultures, and as he could not recover the bacilli from the tissues, suggested the symptoms were due to a powerful toxin. In 1890, Knud Faber proved the toxic nature of the disease by reproducing it with germ-free filtrates of cultures. In the same year (1890), Behring and Kitasato accomplished the antitoxic serum which soon after became available for treatment. All this took place over forty years ago, and since then developments have mostly concerned the mode of absorption of the toxin and the evaluation of antiserum.

The relationship of tetanus to the soil revealed by its history is associated with the fact that its normal habitat is the intestine of herbivorous animals, especially horses and cows. The soil is contaminated by their droppings, the infection being further distributed by dust-borne spores. Nothing very accurate is known about the condition of the bacteria in the soil. It is thought that there may be some multiplication here and there, but that the microorganism survives mainly in spore form. These are not so everlasting as commonly assumed, being subject to destruction by light and other adverse influences. The soil's supply of tetanus is maintained by repeated recontamination. But spores can be very resistant at times, and have been found to survive many years in the dried state—two and a half years (von Eiselsberg(3)) and even eleven years (Henrijean(4)) on splinters.

Notwithstanding the broadcast infection of the soil in civilized areas, tetanus is a rare malady. Manifestly the appearance of the disease involves something more than inoculation with spore-polluted earth. The spores themselves are not capable of causing the trouble; toxin is made only by the bacilli. On injection, pure spores promptly undergo phagocytosis and are destroyed, and even those which escape do not germinate into bacilli and so there is no tetanus. When earth is injected with the spores, the inflammatory response is greater, abscess-like accumulations of leucocytes are formed in which there occur areas of necrosis. In these areas the spores germinate into bacilli and tetanus follows. Spores outside these areas remain inactive.(5) It was held formerly that the failure of the spores was due to the phagocytosis, but the more recent view correlates it with the oxygen tension in the tissues. In uninjured areas there is sufficient oxygen to restrain the growth of the anaerobic organisms; in the necrosed areas there is relative asphyxia due to imperfect diffusion of oxygen from the disturbed capillary circulation.(6) The occurrence of tetanus depends on the balance of the conditions being such as to produce sufficient anaerobiosis to permit growth into bacilli. Similar conditions must be present for naturally occurring tetanus.

The usual history of a tetanus case is of a puncture by a dirty ("rusty") nail or splinter, or of laceration soiled by garden earth, or street dust, or of the equivalent of these states. In our series of 45 cases the wounds were punctured in 11 (nails six, splinters five), lacerated in 11, cuts in 11 (mostly roughly by tins, bottles, bones *et cetera*) and in 10 the kind of wound was not mentioned; the remaining two cases were umbilical (*tetanus neonatorum*). In punctures the spores are deeply buried, and in lacerations and ragged wounds spores are sheltered in bays and recesses, and so in both they are more or less protected from the air. The nature of the injuries was such as to cause destruction of tissue and necrosis sufficient to interfere with internal respiration and allow the spores to germinate. The companionship of other bacteria which would consume oxygen (common in soil) and the presence of foreign matter and particles of silica and calcium which reduce oxygen in their vicinity, may be expected to have helped. Such "tissue debilitants" (Tullock) are usually present in tetanus wounds.

Less commonly tetanus has followed vaccination with impure calf lymph, sera from horses incubating

tetanus, imperfectly "sterilized" gelatine and catgut, unsterilized dressings *et cetera*, the association with a possible source being obvious; but occasionally the mode of infection is more obscure as in post-operative and *post partum* tetanus, and in its curiously frequent appearance after gunpowder and fireworks injuries. In this connexion it is to be noted that the occurrence of tetanus organisms in human intestines and stools was demonstrated in 1898, and has been quite frequently confirmed.(7) The carriers are in different proportions in different places, and their existence brings autoinfection within the sphere of possibility and may explain some otherwise baffling cases. Epidemiologists commonly associate tetanus with uncleanliness and squalor.

The tetanus wound as a wound may be insignificant. Quite often it is very slight, and may have healed up before tetanus shows itself. Even when present, it may show little activity, be practically dry or have only a little moisture or pus. In this pus tetanus bacilli may be seen along with other organisms, and its inoculation may produce tetanus in test animals; but it is a fact of experience that often enough neither method reveals them. It would seem that usually they soon disappear from the wound, though spores may persist. Occasionally in experiments the spores have been found in neighbouring lymph glands, or in the organs, having been conveyed abroad by the phagocytes. Bacilli do not so wander, but are locally destroyed. There are no marked histological lesions; notwithstanding its great potency, the toxin does not seem to do much damage to the tissues. Nevertheless in a case of manifest tetanus the spores have grown into bacilli, the bacilli have produced toxin, and this toxin has been absorbed and attacked the anterior horn and other nerve cells. There is no definite evidence of its attachment to any other tissue.

The time taken for the elaboration of sufficient toxin to produce symptoms varies with the virulence of the bacilli and the resistance of the patient. The virulence of the bacilli ranges down to non-toxicity in isolated species and no doubt there are natural grades. As regards the patient, there is no evidence of any natural immunity such as occurs in diphtheria. Antitoxin in the blood of experimental and human carriers has been described and appears to exist, but it is not of such a degree as to afford any adequate protection against the highly poisonous tetanus toxin. In wounds the elaboration of toxin commences presumably as soon as bacilli are formed, and symptoms appear when it reaches and affects the nerve cells. This seems to require eight to ten days as a rule (average incubation period), but it is exceptionally shorter and rather more frequently longer. Table I gives the periods in our series of cases.

The incubation periods in our cases ranged from three to 25 days, most of them being between six to 10 days, and nearly all of them being under 15 days. The fatalities shown are concordant with the well-known fact that tetanus is most fatal when the incubation period is short.

TABLE I.
Incubation Periods.

Period.	Cases.	Deaths.	Fatality.
			%
Under 5 days	2	2	100·0
6 to 10 days	21	11	52·3
11 to 15 days	9	5	55·5
16 to 20 days	1	0	—
21 to 25 days	1	0	—
Not definite	10	4	36·3
Totals	45	23	48·8

I know of no data respecting the comparative incubation periods in children and adults, but, judged on the usual basis, our series appears to be unhappily loaded with short period cases, 23 of the 35 known periods being under 10 days.

As already mentioned, the important event of the incubation period is the formation of toxin and its passage to the nerve cells. According to current views,[1] the toxin is absorbed by nerve endings and passes along the nerve fibre (or alternatively along intraneural channels) to the cell body in which it becomes fixed. This fixation of toxin by nervous substance has been experimentally demonstrated, and is known as the Wassermann-Takaki phenomenon. There is an existing controversy as to the nature of the fixation, authorities differently contending for lipoid or albuminous linkage. Meanwhile the practical point is that the toxin lodges in the cells of the central nervous system, allegedly having reached them via the corresponding nerves.

The toxin at its point of formation is not all absorbed by the local nerve endings. Some of it passes by the lymphatic channels to the blood, in which it is said to be demonstrable days before symptoms appear. But this blood-borne toxin does not get to the nerve cells directly; it too has to be taken up by nerve endings and passed up the nerve. In this latter case it is not a matter of the local nerve endings, but of all nerve endings that the toxin reaches; the blood performs the office of generalizing the toxin.

These differences of route are said to account respectively for localized and ascending tetanus from the locally absorbed toxin, and for the generalized and descending form which follows dispersal by the blood. The precise way in which the toxin causes the hyperexcitability and disorder of the neurones is not known.

From the point of view of therapeutics we may envisage a case of developed tetanus as a disturbance of the nervous system due to a toxin, some of which is already fixed in nerve cells, some probably circulating in the blood, and some possibly still being elaborated at the site of infection. The first point is definite. The second is likely because tetanus in human beings is usually of the descend-

[1] These views are stated, challenged, defended often, but as yet are not supplanted by any acceptable alternative.

ing and generalized type, and is adjudged[8] as due to entrance to the blood of continually produced small quantities of toxin which is drained away rather than absorbed by the nerve endings; this last-mentioned event would produce the local and ascending types. The third point is involved in this same reasoning of continued production and slow absorption; but the period of vegetation appears to be short, bacilli disappear in a few days, though unchanged spores may persist for some time.

The indicated measure of countering the intoxication is the antitoxin, and this medicament has been constantly applied in our cases. The amounts and routes of administration and results are given in detail as tables in the appendix. The essential issues are discussed below.

It may be noted as a preliminary consideration that the fatality of tetanus in pre-serum days was between 80% and 90% (Table I in the appendix). Among cases during the Great War, in which serum was not used, there was a fatality of 83%. The usual fatality among serum-treated patients appears to be between 50% and 60% (Appendix, Table II), though sometimes higher. The general fatality in our series was 48·8% (45 cases with 22 deaths). Individual records have been better, but they are possibly selected for publication for that reason. The general issue seems to be that there has been a quite material reduction of fatality since the introduction of tetanus antitoxin, although it falls very far short of that effected by the corresponding treatment for diphtheria.

The fatality rate during the Great War showed a practically continuous reduction from 58% in the first year to 24% at the end (Table III in the appendix). This is attributed to benefit derived from the increasingly proficient use of tetanus antitoxin as a prophylactic, practically every case being so treated on the field. The prophylactic antiserum appears to have supplied the blood with antitoxin to neutralize the toxin during the period of absorption, and so to have entirely removed or much minimized the effect. The benefit seems so validly established as to demand the use of the antiserum in every case in which a wound is prospectively tetanogenic. The difference between this prophylactic success and therapeutic failure suggests that the antiserum acts only on the circulating toxin and cannot displace that already anchored to the cell. This consideration has led to attempts to reach the fixed toxin by introducing the antitoxin into the cerebro-spinal fluid. Some experimental work suggested the superiority of this method, but it has not been generally verified, and current opinion is to the effect that it has no clinical advantage. Our own results are in accord with this view. The data with respect to route of injection are given in Table IV in the appendix. In this place it may be noted that intrathecal and intravenous injections gave fatalities of 48·0% and 43·7% respectively, so that the comparison is certainly not in favour of the intrathecal route. On theoretical grounds one would suppose that antitoxin in the cerebro-spinal fluid would pass out through the arachnoid villi into the blood rather than into the brain, and this seems to have been experimentally proved by Ransom. Further, no advantages resulted by reversing the flow of the fluid by Weed's method of intravenous hypertonic saline solution (Florey and Fildes), although there was evidence that antitoxin flowed into the brain. Apparently nerve-cell-fixed toxin cannot be nullified. One may hope for benefit only by neutralizing unfixed (blood) toxin, and presumably this would be effected better by intravenous than by intrathecal injections. As far as our results are concerned there was little to choose between the methods. It may be mentioned that every patient received intramuscular injections supplementary to the others by way of prolonging the effect by slower absorption. Subcutaneous injections were rarely given. Our results do not indicate superiority of any particular method, and are in accord with the view of Fildes that "failure to cure tetanus depends on factors other than the site of injection of antitoxin".[9]

As regards such other factors, reference has already been made to the incubation period in our cases and their concordance with the view that longer incubation periods were more favourable to recovery (Table V, *b*). The prolongation of this period was one of the factors of the benefit from prophylactic injections during the War. One may surmise that the lengthened period meant slower absorption and less concentration of toxin and so milder effect.

Analysis of the initial dosage of serum (Table IVB) showed no advantage within a range of 10,000 to 200,000 units immediately nor between intrathecal and intravenous (52·1%) first injections.

Analysis with respect to the total amounts of serum was not made, as this obviously depended on how long the case lasted, in brief cases little, in longer cases much serum being given. Patients who held out did better. Excluding deaths within forty-eight hours, there were 28 patients of whom six died, a fatality of 21·4%. But this is perhaps due to the comparative mildness of the infection rather than to benefit from longer serum treatment.

Patients who came under treatment early did not seem to do better than those in whose treatment there was some delay (Table V, *c*). Apparently, however early the patient comes under treatment, the worst of the mischief is already done.

The examination of these various aspects of our cases has led to inferences in general agreement with experience elsewhere, and so to that extent they may be accepted as valid guides for our future attitude. Whilst they afford justification for continuing serotherapy, we gain no direction as to any special method of administration. Our present system of giving simultaneous intravenous and intramuscular injections (100,000 units each), repeated on successive days for as long as may be necessary, would appear to be rational and as promising as any other procedure.

Chloral, morphine, general anæsthetics *et cetera*, to control spasms were used as occasion demanded, but afford no basis for special comment.

One point of fundamental importance is of very difficult decision, namely, treatment of the wound. There is no question as to the immediate requirements. Any "dirty" wound should be thoroughly cleaned, foreign matter and destroyed tissue removed. In the event of its being such that tetanus may follow, prophylactic serum should be given—1,500 units repeated every week for two or three weeks. This may ward off or slow down the poisoning and greatly improve the chance of recovery. On the basis of experience it is not too much to say that this prophylaxis should never be omitted if there is any possibility of tetanus. So far all is clear.

But in civil practice the patient does not often come under professional treatment until tetanus has declared itself, and then the time for prophylaxis is past. It is now a matter of difficulty to decide what should be done with the wound. No doubt, any wound that needs it should be cleaned and treated in the usual way, but the condition specially as regards tetanus is much less definite. If toxin production is still going on, it would be important to stop it, just as it is important to stop septic absorption, and so there arises the question of surgical interference.

It does not appear that operation in itself is likely to be detrimental to the patient. In Surgeon-General Sir David Bruce's report there are two series of operations for various purposes during tetanus, one of 21 cases with 10 deaths (fatality 47·6%) and one of 15 cases with four deaths (fatality 26·6%); and the Surgeon-General remarks: "There would appear to be no marked danger in operating after the appearance of tetanus symptoms" (*The Lancet*, 1917, Volume I, page 981).[1] But if there be no cause for hesitation on this account, it is nevertheless difficult to assess the position as regards the continued existence of bacilli in the wound. The fact that cultures can be got from it, and that animals can be infected, shows that often enough the infection is still there, and spores may be thought of as potential bacilli in this connexion. But if this fact pleads for their removal, it also imperatively demands that there should be no tinkering, no stirring up of local conditions. The permissible thing is clean excision through surrounding healthy tissues. The advisability and practicability of this is a matter for expert opinion in any particular case, consideration being given to other influencing factors such as incubation period and the severity of the attack. The decision of the staff to submit all future cases to surgical consultation appears to be the rational procedure in the circumstances.

One further point deserves consideration. The tetanus infection is rarely, if ever, pure, and some accompanying bacilli are referred to as "activating" the tetanus organism. Nicolaier produced "malignant œdema" by his injections, and the organisms responsible for this state (the *Vibrion septique, Bacillus welchii, Bacillus œdematiens et cetera*) are known to occur in the soil. It might be of advantage to cover these with appropriate antisera, but as far as I am aware, the only suitable serum now available is that against *Bacillus welchii* (gas gangrene antiserum). I note a recommendation for its additional use is contained in the new "British Pharmacopœia" just to hand. By the same reasoning, other antisera might be useful on occasion as indicated by the bacteria formed in the discharge from the wound.

[1] See also *The British Medical Journal*, June 8, 1935, page 1171.

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Appendix.

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		%
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Danish Hospitals	199	79·0
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The Great War (non-serum cases)	72	83·3

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December, 1916, to March, 1917	100	19·0
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Both	3	2	1	33·3

TABLE IVB.

Showing the Fatality of Tetanus in Relation to Serum Therapy at the Royal Alexandra Hospital for Children.

Initial Dosage.	Number of Patients.	Recovered.	Died.	Fatality.
				%
(a) Amount in Units—				
10,000	4	3	1	25·0
20,000	12	8	4	33·3
30,000	5	2	3	60·0
50,000	2	2	0	Nil
100,000	12	6	6	50·0
200,000	5	2	3	60·0
(b) Route of initial injection—				
Intrathecal	26	13	13	50·0
Intravenous	19	9	10	52·0

TABLE V.

Showing the Fatality of Tetanus in Relation to Various Factors at the Royal Alexandra Hospital for Children.

Observation.	Number of Patients.	Recovered.	Died.	Fatality.
				%
(a) *General fatality*—				
Royal Alexandra Hospital for Children, 1921 to 1935	45	23	22	48·8
(b) *Fatality in relation to incubation period*—				
Incubation under 10 days	23	10	13	56·5
Incubation 10 to 25 days	11	6	5	45·4
(c) *Fatality in relation to period patients came under treatment*—				
Previous duration:				
1 day	17	5	12	70·0
2 days	7	5	2	28·6
3 days	9	5	4	44·4
4 days	4	2	2	50·0
Over 4 days ..	2	2	0	Nil
Indefinite	6	3	3	50·0

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(1) Hirsch: "Geographical and Historical Pathology", N.S.S. Trans., Volume III, page 603.
(2) Sternberg: "Manual of Bacteriology", page 482.
(3) "System of Bacteriology", Medical Research Council, 1929, Volume III, page 222.
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(6) Paul Fildes: "Tetanus. VI: The Conditions under which Tetanus Spores Germinate in Vivo", *The British Journal of Experimental Pathology*, Volume VIII, 1927, page 387.
(7) "System of Bacteriology", Medical Research Council, Volume III, 1929, page 322; and M. Young: "Tetanus. IV: The Geographical Incidence of Tetanus in England and Wales", *The British Journal of Experimental Pathology*, Volume VIII, 1927, page 226.
(8) "System of Bacteriology", Medical Research Council, Volume III, page 347.
(9) "System of Bacteriology", Medical Research Council, Volume III, page 368.
(10) Tables from "System of Bacteriology", Medical Research Council. Table III from Surgeon-General Sir David Bruce's reports. (The other tables were compiled from the hospital records.)

[1] Apart from the hospital records the principal sources of information made use of were the series of reports by Surgeon-General Sir David Bruce appearing in issues of *The Lancet* between 1915 and 1919 entitled "Analyses of Cases of Tetanus Treated in Home Military Hospitals"; various other papers of military origin published during the same period; and the article on tetanus in the Medical Research Council's "System of Bacteriology", Volume III, 1929. Special references are included above.

LOWENTHAL'S NEW CUTANEOUS MANIFESTATION IN THE SYNDROME OF VITAMIN *A* DEFICIENCY OBSERVED IN PAPUAN NATIVES.

By W. E. GIBLIN,
Government Medical Officer, Port Moresby, Papua.

LOWENTHAL has recently described a peculiar skin eruption amongst prisoners in Uganda central prisons, detected during his quarterly inspection of them. None of the other medical officers present could define it.

Many of the patients with this eruption also suffered from night blindness and xerophthalmia. The eruption, which is papular, is associated with a dry skin, itching, a folliculitis and sometimes acne of the face. He defines the papular eruption as follows:

> This is typical of the condition and has not been observed by me in patients not suffering from avitaminosis. The papules are about one-quarter of an inch (0·6 centimetre) in diameter, smooth topped, black and shiny. The edges are sharply demarcated, and the shape of these papules is round or polygonal. Their distribution is limited; almost invariably they are found on the extensor surfaces of the arms and on the front and outer surfaces of the thighs. In addition, they may be present to a variable extent on the buttocks, loins, chest and back. In the last two sites they frequently merge into the acneform eruption which is part of the syndrome.

This description at once reminded me of a very similar eruption I had seen as far back as 1912 in Papuan natives coming to the Native Hospital at Samarai for treatment or inspection.

Young adult males from the hills of Ferguson and Goodenough Islands are particularly subject to it. The general nutrition of the affected persons was excellent, and no eye symptoms were detected; itching was not complained of. Different local treatments were quite ineffectual.

About 1919, after the War, Dr. Thompson, a medical officer attached to the Native Affairs Department, demonstrated xerophthalmia amongst indentured natives working in the vicinity of Port Moresby. As a result of his excellent clinical description of the eye signs of xerophthalmia, patients in early stages of the disease were detected amongst patients in the Samarai Native Hospital and many of these also had this purplish papular rash.

Cod liver oil soon cleared up the eye signs, but the skin eruption did not disappear. The treatment had not been sufficiently prolonged. Later in 1931 an outbreak of xerophthalmia occurred amongst indentured natives working in a desiccated coconut factory. Here again the skin eruption was most pronounced. The affected natives were fat and plump, they had been given ample coconut, but little or no cod liver oil—an observation supporting Lowenthal's statement that "a deprivation of fat alone does not cause this skin eruption, and the evidence is all in favour of the vitamin *A* deficiency being the sole cause."

Lowenthal particularly stresses the necessity for prolonged treatment with cod liver oil if the skin lesions are to disappear. The patients from the desiccated coconut factory received cod liver oil, one tablespoonful morning and evening for two weeks, with obvious improvement in their eye conditions, in the early cases, but no obvious improvement in the skin lesions.

In the *Tropical Diseases Bulletin* of May, 1934, I read an extract of Lowenthal's paper, and at once looked round for material. Amongst the native patients in the Port Moresby Native Hospital one was found with typical papules on the extensor aspect of his thighs. A small wedge of skin including two papules was excised and sent to the School of Public Health and Tropical Medicine, Sydney, from which the following report was received:

A large number of sections have been cut from the specimen of skin, some of which closely correspond to the centre of a papule. The histological appearance is very similar to that described and depicted by Lowenthal, the follicular plug being clearly shown in some sections, with the remains of the hair lying coiled between the layers.

This skin eruption is quite rare amongst natives admitted to the Native Hospital at Port Moresby, and I have never seen it in any of the local village people.

The response to treatment with cod liver oil, though slow, is quite definite; after about three weeks the central keratotic plug drops out of the centre of the papule, which slowly disappears, leaving a pigmented macule.

Acknowledgement.

I have to thank Dr. W. M. Strong, Chief Medical Officer of the Territory, for permission to publish this article and the School of Public Health and Tropical Medicine, Sydney, for the pathological report on the skin papules, and for a reprint of Lowenthal's original paper.

Reports of Cases.

AN INTERESTING SCALP CONDITION.

By JAMES O'DONNELL, M.B., Ch.M.,
Honorary Dermatologist, Fremantle Hospital; Honorary Assistant Dermatologist, Perth Hospital.

Mrs. D., aged sixty years, was first seen in January, 1933. At that time she had a furuncle on the left eyelid and a weeping infected eczematous rash around the eye and eyebrow. She had been applying hot boracic foments to the region to relieve the pain associated with the "stye". In doing so, she either burned herself or she had an idiosyncrasy to boracic acid. After some months this infected eczema cleared up, but was extremely obstinate.

The scalp at this time was grossly infected with dandruff, which responded to treatment. The scalp at this time was also quite smooth and free of anything suggestive of convolutions. Before the "stye" came, she had complained of an itchy scalp, but had not had any "sores" on the head at any time.

The patient had a dry thin sort of skin on the face and an appearance and speech slightly suggestive of myxœdema.

She left for the country, apparently well, about May, 1933. The scalp was clean and smooth and the rash had cleared up.

At the beginning of the second attack the patient gave the history that she had had some "sores" in the scalp in August, 1933; these, though obstinate, had cleared up under treatment. However, the scalp gave trouble again in December, 1933, and she came to Perth in January, 1934, in rather a bad way. She then consulted a herbalist, who gave her a "specific remedy" (which contained iodides) and an ointment to apply. Before consulting the herbalist, she was quite certain that the scalp was showing ridges "just like a sheep's brain" (as she described it).

On examination at this time the scalp was grossly infected and thrown into folds suggestive of cerebral convolutions (see Figures I, II and III). This boggy infiltration and weeping condition also invaded the face (see Figure II). The facial involvement also showed "convolutions". Both ears were also involved, though to a less extent. In the scalp the hair showed follicular oozing "pin-point" abscesses at the roots of the hairs, and the intervening skin showed weeping raw eczematous surfaces. The condition felt boggy, but there were no large abscesses. The ridges showed less hair than in the furrows. The involved area on the face showed weeping boggy eczema, but no follicular abscesses as on the scalp. She also had crusted "monilia-like" lesions in the naso-facial grooves and also perlorally. The body, except for dry skin, was normal.

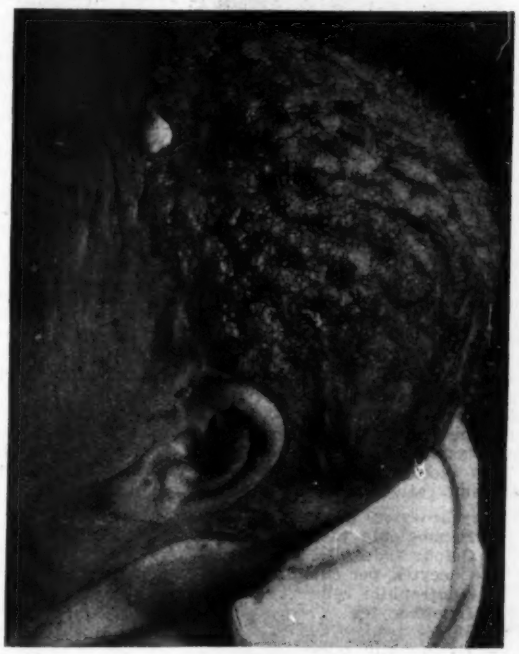

FIGURE I.

The patient was then admitted to the ward. While in hospital she developed an isolated nummular patch of infiltration in the skin in the left posterior cervical triangle. This did not become crusted or weeping, but showed a convoluted appearance like the area on the face, and looked like a piece of scrotum surrounded by normal skin. Under various antiseptic and anatiparasitic remedies and with the assistance of X rays, the eczematous part of the condition cleared up, but the skin still showed "convolutions" in the scalp and on the face. The patient was eventually discharged from hospital with a dry but convoluted scalp

(see Figures IV, V and VI) and face, the hair growing in the furrows rather than on the ridges on the scalp. Since that time she has suffered another replase, but has not returned to Perth. I understand that the scalp is still convoluted and is again eczematous.

Investigations.—The following investigations were carried out:

1. Smears and cultures from the active weeping areas showed only staphylococci; the pus from the follicular abscess also showed staphylococci.
2. Repeated smears, scrapings *et cetera*, were examined for fungi, coccidiodes, monilia, actinomycosis, blastomycosis and *Bacillus lepræ*, but none was found.
3. Smears from the nose were examined without success for Hansen's bacillus.

FIGURE II.

4. The blood several times gave no reaction to the Wassermann test.
5. The blood serum showed a trace of iodides.
6. The basal metabolic rate was +16 on May 17, 1934 (pulse rate 66), and +11 on May 21, 1934 (pulse rate 72).
7. A blood count was made on May 6, 1934, with the following result:

Erythrocytes, per cubic millimetre ..	4,140,000
Hæmoglobin value	73%
Colour index	0·9
Leucocytes, per cubic millimetre	9,000
Neutrophile cells	80%
Lymphocytes	14%
Monocytes	4%
Eosinophile cells	2%

The red cells were normal in appearance.

On August 14, 1934, a blood count gave the following result:

Erythrocytes, per cubic millimetre ..	4,600,000
Hæmoglobin value	82%
Colour index	0·8
Leucocytes, per cubic millimetre	6,000
Neutrophile cells	58%
Lymphocytes	40%
Eosinophile cells	2%

8. The urine on repeated examination was found to be normal.

FIGURE III.

9. The von Pirquet test gave no reaction.
10. The patient refused to have a biopsy carried out.

External Applications.—External applications included compresses of perchloride of mercury, copper sulphate, lead acetate, alum sulphate, boracic acid, ichthyol, resorcin *et cetera*. Ointments containing tar, ichthyol, mercurials, copper, salicylic acid, sulphur *et cetera*, were used.

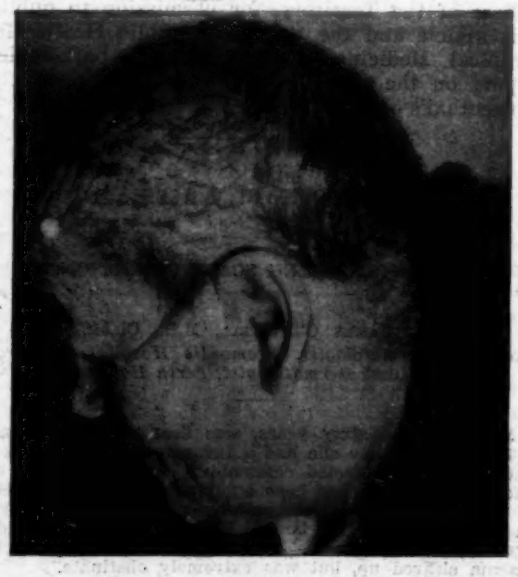

FIGURE IV.

Injections.—The following injections were given: Mixed staphylococcal and streptococcal vaccines intradermally

and subcutaneously; staphylococcal bacteriophage; "Aolan"; "Collosal Manganese". Autohæmotherapy was tried.

X Rays.—A 40% skin erythema dose was given on July 19, 1934, to all areas, a filter of two millimetres of aluminium being used. This was later repeated.

FIGURE V.

Internal Medication.—Sodium thiosulphate, tonics and thyreoid extract were given.

The treatments that did the most good were the copper sulphate (1:200) applications and the X rays.

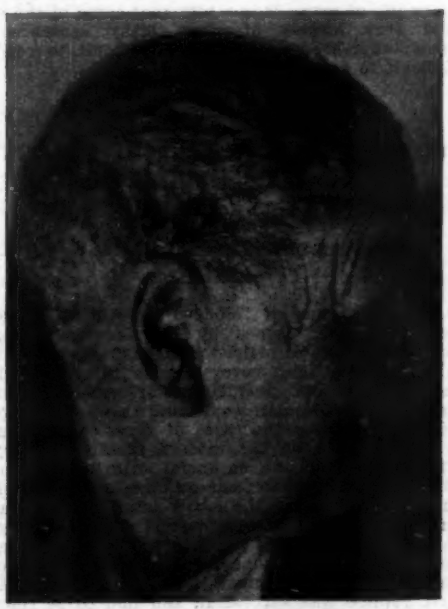

FIGURE VI.

Comment.

A case is described which obviously started off as an infected granulomatous seborrhœic eczema (or monilia) infection of the scalp, with superadded pyogenic and possible seasonal allergic complications. The final result was a condition that resembled *cutis verticis gyrata* (see Figures IV, V and VI). In the diagnosis one had to consider the possibility of localized myxœdema, *leuchæmia cutis*, leprosy, iododerma, actinomycosis, blastomycosis, coccidiosis, *tuberculosis cutis* and syphilis, and other granulomata. I was very surprised that no streptococci were cultured and that no monilia were found.

Acknowledgements.

My thanks are due to Dr. J. E. McGlashan for his interest and assistance with the case; to Dr. M. B. Johnstone for the X ray therapy; and to the Pathology Department and Photographic Department of the Perth Hospital for the numerous examinations and photographs respectively.

ACCOMMODATION IN APHAKIA.

By W. WALLIS HOARE, F.R.C.S. (Edinburgh),
Brisbane.

ONE is taught that the human aphakic eye is destitute of accommodation. When one considers that in the generally accepted theory of accommodation the principal factor is contraction of the ciliary muscle causing relaxation of the tight anterior lens capsule and allowing the lens to approach the spherical in shape, with subsidiary factors pupillary contraction and convergence, there would appear to be nothing wrong with this teaching. Notwithstanding, however, some aphakics do manage to read with their distance lenses, and not large print only, but quite small print. It is quite common to find young aphakics reading with their distance lenses. I have two patients, a brother and sister, both operated on in their early twenties for bilateral cataracts, both of whom read ordinary print and even small print with their distance correction. Children operated on for congenital cataracts quickly learn to read without reading addition to their distance lenses. The following case will illustrate this:

R.S., then aged four years and nine months, was operated on by me for bilateral congenital cataract in February, 1931, by the Zeigler through-and-through method, and was brought to see me this month, now aged eight years. With correction of +16 dioptre spherical lens vision in the right eye is $^6/_6$ with +15 dioptre spherical lens vision in the left is $^6/_9$; he reads J6 quickly and without effort. He has orthophoria.

While common in youthful patients, it is by no means common for the elderly aphakic, who requires a strong *plus* lens to see at distance, to read print with the same correction; however, such cases do occur.

The other day, Mrs. R., aged sixty years, called to see me. She was operated on by me for left cataract ten years ago, and for right cataract five years ago. Both operations were similar—extracapsular extraction with peripheral iridectomy. Her object in coming to see me, she explained, was that her glasses might require alteration, though she admitted her sight was excellent, and further that she had discarded her reading lenses as she could see any print with her distance correction.

On examination both pupils were nearly round and active, especially the left, which noticeably became very small when she was reading print with her distance lens. The right eye with correction of +11 dioptre spherical lens with +1 dioptre cylinder, axis at 180°, had vision $^6/_6$, and with added +3·5 spherical lens could read J1; the left eye with correction of +11 dioptre spherical lens with +3 dioptre cylinder, axis down and out, had vision $^6/_6$, and with the same lens could read J8, but with +12 dioptre spherical lens with +3 dioptre cylinder, axis down and out, the left eye saw $^6/_9$ and could read J1 quickly and correctly. At her own wish the latter correction was given for her left eye owing to the convenience it afforded for near work. Binocular vision with some

hyperphoria is present. This lady, who might be described as a *rara avis*, is the only patient aged sixty years whom I have encountered who with a distance correction fairly efficient (⅞) could without reading addition manage J1.

Naturally the question arises: How does the aphakic accommodate? The usual explanation that the pupils strongly contract, putting in practice the method used by a presbyope when faced with the necessity of reading without glasses, that is, making a pinhole opening in a card and reading with one eye, does not to me quite fully or adequately explain the phenomenon. It is more likely that with the contraction of the pupil, which is essential, a strong concomitant contraction of the circular fibres of the ciliary muscle produces a lengthening of the antero-posterior axis of the eyeball, bringing about a partial myopia. These two factors would together enable an aphakic to dispense with any reading addition, and it is easy to imagine a young person with a powerful ciliary muscle quickly completing his or her post-operative contractile education, but it is certainly exceptional to meet an elderly aphakic who has mastered this problem so efficiently as Mrs. R.

Reviews.

SEX AND THE UNMARRIED ADULT.

DR. I. S. WILE'S book, "The Sex Life of the Unmarried Adult", consists of eleven short articles and a preface.[1] Five of the articles have been written by professors in different American universities, and the remaining chapters have been contributed by medical graduates, lawyers and economists. The volume is thus an attempt to survey the whole field of the sex life of unmarried adults.

Biology, anthropology, morals, law, psychology, sociology and literature of this group of society are packed into a volume of 300 odd pages. It is inevitable in a book of this kind that there must be overlapping and repetition and a varying value in the contributions by the different authors.

Probably the most valuable essays in the series are those on economics and morals, whilst that on the literature gives a very comprehensive account of the works of many novelists, from Richardson and Fielding down to Lawrence and others of the modern school, in their attitude towards problems of sex life among the unmarried.

In the essay on the economic background of sex life there is a great deal of matter of the utmost importance and not a little that is startling. As an example, the thesis is developed that a large body of unmarried citizens may in certain situations become a menace to social stability. The rise of the Nazi movement in Germany is given as an illustration of this danger; the author asserts that the majority of the thirty or forty leaders of the Nazis, including Herr Hitler himself, are bachelors and "men like himself [Herr Hitler] of sadistic temper". "A number of the prominent Nazis are men with records of sex perversions as well as of military daring." "The Third Reich is perhaps the first example of a nation dominated by convinced bachelors." These are some of statements which, if true, are indeed of startling significance, for they would form evidence of the far-flung influence of sexual repression in the genesis of bloody revolution—a fact long suspected by psychoanalysts.

It is said that hordes of young men and young women are wandering about America, homeless and landless, and the author sees that the hopeless outlook and potential danger of these citizens are largely due to the fact that all land has been taken up and that, therefore, they cannot lift themselves economically as their forefathers did when vast tracts of land were free.

The number of pariahs in the United States of America is declared to amount to millions, and the writer truly states that men and women cannot be made social outcasts with impunity.

A very gloomy picture of conditions in America is painted; the word chaos is frequently applied to conditions existing there; suicide and insanity are increasing; there is a growth of psychopathic clinics and a fear of the future is evident by the growth "in the propaganda among the well circumstanced for the sterilization of the unfit". The cynicism of this sentence might well be noted by those of our own profession who seek this easy way of solving a difficult problem.

It is emphasized that in Eastern countries marriage and political stability have always been linked together, and the family system has been deliberately linked to statecraft.

In Western Europe different customs have arisen to weaken this linking of marriage to state, with results that have proved disastrous to politico-economic systems; the crusades and the French revolution are cited as great upheavals largely motivated by unmarried men.

Dr. Robert L. Dickinson, honorary secretary of the National Committee on Maternal Health, is one of the few medical contributors. He takes a very wide and sane view of sexual aberrations, and gives statistics which show that up to 85% of women have practised masturbation at some time during their lives; for males the figure was about 70%. In fact, the habit was so common as to be regarded as almost a normal physiological process, and therefore productive of no real harm except as the result of a faulty moral attitude on the part of the person. This is a swing of the pendulum away from the views of our fathers, who considered masturbation to be an evil, both moral and physiological, of the worse kind. There can be no doubt that this latter view was wrong and resulted in much harm. On the other hand, not all will agree that Dr. Dickinson's views represent all the truth about this question, but in our opinion they are sound and are a confirmation of the views expressed by psychoanalysts.

The book is a valuable contribution to the literature on the sex life of man. It is a pity that some of the essays consisted very largely of short pithy sentences like aphorisms; this kind of writing is difficult to read and most difficult to assimilate.

[1] "The Sex Life of the Unmarried Adult: An Inquiry into and an Interpretation of Current Sex Practices", edited by I. S. Wile, M.D.; 1935. London: George Allen & Unwin, Limited. Demy 8vo, pp. 342. Price: 7s. 6d. net.

Notes on Books, Current Journals and New Appliances.

A BOOK ON TREATMENT.

THE second volume of "Modern Treatment in General Practice"[1] has been issued by *The Medical Press and Circular*. It consists of articles that have appeared in that journal. These articles cover a wide range of subjects, and the list of authors includes many well-known names. That medical practitioners would find this a useful volume to study, is shown by the titles of some of the chapters. There is an article on the modern treatment of gastric and duodenal ulcer; one on facial injuries due to road accidents, and their repair; one on anæsthesia in children; one on fractures around the elbow joint in children; and one on the treatment of tuberculosis of the male genital tract. In all, there are forty chapters; and the last, on the abduction treatment for fracture of the neck of the femur, by Royal Whitman, is one of the most valuable. The first volume was successful, and had to be reprinted. We think that a similar fate awaits this volume.

[1] "Modern Treatment in General Practice", Volume II, edited by C. P. G. Wakeley, D.Sc., F.R.C.S., F.R.S.E.; 1935. London: Baillière, Tindall and Cox. Demy 8vo, pp. 390, with illustrations. Price: 10s. 6d. net.

The Medical Journal of Australia

SATURDAY, FEBRUARY 8, 1936.

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QUACKERY.

THE word quack is an abbreviation of quacksalver. *Salf* or *Zalf* is a salve or ointment; and *quacken* (modern Dutch *kwakken*) is to quack. On this view, the Oxford Dictionary states, a quacksalver is one who "quacks" or boasts about the virtues of his salves; it adds, however, that Franck has suggested that *quack* or *kwack* may mean "to work in a feeble or bungling fashion". There are many definitions of a quack. In a recent essay on charlatanism,[1] Dr. I. Wasserberg, who is a member of the Health Section of the League of Nations Secretariat, quotes two: "A quack is a person who pretends to knowledge of which he is ignorant, particularly a medical impostor"; and "a quack is a person who engages in the treatment of the sick without possessing the requisite State authorization for the purpose". Wasserberg's essay is of the greatest interest; it should have the widest publicity. It carries a message to legislators, to the general public and, if they will read between the lines, to the members of the medical profession.

Wasserberg accepts the latter of his two definitions of quackery, and bases his whole argument upon it. He gives two reasons for this selection. In the first place he points out that with few exceptions the right to treat the sick is in all civilized countries conditional upon a government authorization, and that in such countries laymen treating the sick are regarded as quacks—quacks in the legal sense. His second reason is that the distinction between quackery in law and quackery in fact, which is apparent in both definitions, is of no great practical importance. He elaborates these reasons and gains his point. In accepting Wasserberg's definition of a quack, however, and in studying his treatise, medical practitioners would do well to bear his first definition in mind, for quackery can, and unfortunately does, exist within the ranks of the medical profession, and even among those who hold the highest qualifications.

Wasserberg gives some interesting facts about quackery. Most civilized countries have always prohibited lay treatment of the sick; and this is a sign that charlatanism is regarded by the influential people of such countries as a socially injurious and therefore undesirable thing. At the same time England and Germany, "two countries which are in the vanguard of progress, not only in purely scientific medical research, but also in the practical curative and social application of medical knowledge", appear to ignore the damage done by lay medicine. The reason for this state of affairs is curious. Wasserberg shows that in Germany in 1869 greater freedom was granted in the exercise of medicine, partly as a result of a petition from the Berlin Medical Association, signed by such famous persons as Virchow, Langenbeck, Graefe and Hirsch. He can find no special reasons for the step then taken. It was argued, he states, that the State was neither required nor entitled to grant to any one class, even to the medical profession, the exclusive prerogative of the treatment of the sick, and that it had no right to limit the citizen's freedom to seek advice and help wherever he chose. It was always argued that laws against charlatanism were unworthy of a well trained and well educated people—the German's sound common sense would be his guide. Wasserberg thinks that the state of affairs existent in England is attribut-

[1] *Quarterly Bulletin of the Health Organization*, September, 1935.

able to much the same considerations; he also thinks that much greater opposition would be forthcoming in England than in Germany were any attempt made to bring about an alteration. "When abstract principles clash with the exigencies of life it is always the latter which prevail." That the sound common sense of the people cannot be trusted is shown by the public health provisions in both countries (Wasserberg goes into considerable detail in this regard). All certificates required by law regarding health, invalidity, death and so on, must be furnished by medical practitioners; vaccination can be performed by medical practitioners only, and none but medical practitioners can be appointed under the provisions of the acts dealing with national insurance. It is perhaps begging the question to attribute the condition of affairs in England and Germany to national characteristics, but no other explanation appears to be forthcoming. In Germany there were in 1930 twenty-seven charlatans to every hundred medical practitioners; there is also in Germany an immense army of pedlars with charlatanic tendencies, one firm employing as many as 700 of these persons. Of all countries in the world, America stands alone in that it has a group of persons with limited licences, osteopaths, chiropractors and the like. Perhaps the most significant historical demonstration of the folly of allowing the people a freedom of choice in regard to skilled and unskilled medical attention comes from France during the great revolution in 1792, and from Russia in 1922. The governments of both these countries abolished the treatment monopoly of the medical profession, only to restore it almost at once—France in 1803 and Russia in 1925. We can do no better than quote Wasserberg in this regard:

> The short experimental period of permitted lay treatment abundantly proved that the particular kind of freedom which it was sought to protect merely leads to a state of anarchy, and, further, that the so-called monopoly of the medical profession safeguards in reality the vital interests of vast sections of the population and not those of the profession itself.

The last seven words of this quotation need special emphasis as far as the general public is concerned, for many people think that the high professional and ethical standard that the medical profession demands of its members is for the protection of the profession and not of the public.

Non-medical healers are as popular in those countries which prohibit charlatanism by law as they are in those in which any person may treat the sick. Strangely also lay healers are sought equally by rich and poor, educated and uneducated. Here it would be well to remember that it has been said that apparently educated people are often strangely ignorant of the natural sciences. Why are lay healers so popular? Wasserberg tries to answer this question. He finds factors that lie in the doctor, in the relief-seeking patient and in the lay healer; but there is no need to follow his arguments *seriatim*. The chief reason undoubtedly lies in the failure of medical treatment. Very often disease is incurable and the sufferer, like a drowning man clutching at a straw, is led in his ignorance, and often to his sorrow, to make trial of anything and everything that is offered to him. Medicine is not and never will be an exact science; knowledge about disease is always in a state of flux; and the medical expert weighs his opinion carefully and is cautious in giving a prognosis. This may create an impression of indecision and even of want of knowledge. The lay healer, on the other hand, is assertive, foretells a cure and, when no cure results, has a plausible excuse at hand. The medical practitioner too often overlooks the psychological aspect of his patient's illness. He treats the disease and not the patient; he forgets that the patient is seeking relief from symptoms and not from a disease, that the patient is not a case, and that too much obvious science destroys the close personal relationship that should exist between doctor and patient. As Wasserberg puts it, the "guinea-pig doctor" and the "test-tube doctor" do not grow rarer with the passing of time, but commoner both in private and in public medicine, and the complaint grows ever more insistent that medicine trains too many medical scientists and too few doctors. Wasserberg thinks that physico-therapeutic methods are neglected in the practice of the average doctor; this probably does not hold true in this part of the world as much as in older countries. These facts are all known to medical practitioners, and

many more might be added to them; they have all been discussed in these pages from time to time; and they point the way to the remedy.

If charlatanism is to be defeated in Australia, if the people are to be turned from the worship of false gods, the State and the medical profession must work together to that end. The State must protect the people from their own foolishness. In the Federal Capital Territory a medical act has been proclaimed that is complete and ideal in its proscription of medical treatment by unauthorized persons. If such an act were adopted by the several States of the Commonwealth and if, being adopted, were administered without fear or favour, a great deal of the charlatanry that is rampant might be checked. Even if the State governments were courageous enough to do this, a certain amount of charlatanry would still be undiscovered; it would remain to be seen whether the people of Australia, in the face of courageous government action, would be different from the people of other lands. Possibly most hope lies with the medical profession. In the first place medical knowledge must be extended and therapeutic weapons must be rendered more efficient. In the second place the standard of medical training must be kept at a high level, and medical training must include training in psychology, both theoretical and practical. In the third place the medical profession must see that provision is made for every member of the community to receive adequate preventive and curative treatment. One last proviso remains: medical practitioners must set their faces against everything in their own practices that savours of quackery; there must be no cant, no hypocrisy, no unnecessary treatment, no use of elaborate methods when simple methods will suffice.

Current Comment.

AN APPENDICULAR FORM OF BACILLARY DYSENTERY.

"THE patient is promptly operated on, and . . . the observations are a normal appearing appendix but a rather mystifying mesenteric lymphadenitis which may be localized to the ileo-caecal region or to the mesenteric border of the ileum." Perhaps the experience described in this quotation can be paralleled by others in Australia. Occasionally an abdomen is opened for what is thought to be appendicitis, and a condition similar to that described above is found, which is subsequently made clear when the patient is found to be suffering from typhoid fever. But is it known that a corresponding inflammation in the region of the caecum and lower part of the ileum may occur in bacillary dysentery? Joseph Felsen, in describing a form of bacillary dysentery which may simulate acute appendicitis, has utilized clinical data obtained from a study of an outbreak of dysentery in and around the metropolitan area of New York.[1] Here there occurred 300 cases of dysentery within twelve months, proved to be due to organisms of the Sonne-Duval and Flexner types. He remarks that many cases are mild and the symptoms are so transitory in nature that the patients do not seek medical attention. This is known to happen in Australia; for example, in one metropolitan hospital in Sydney within the last year an epidemic of mild diarrhœa occurred, which was proved to be due to a Flexner type of bacillary dysentery. At the same time there was a widespread outbreak of a similar nature through many parts of the metropolitan area, and it would seem likely that most of these cases were due to the same cause. Felsen points out that this American epidemic was at its height in the winter, a point worth noting. But here we are concerned with a particular form of the disease which made up no less than 3% of the total, the so-called appendicular form. Most of these cases occurred in children, the illness being ushered in by colicky pain in the abdomen, often localized to the right lower quadrant, vomiting, slight rise in temperature and some general malaise. There was usually some tenderness in the region of McBurney's point, but careful palpation revealed a spastic ileum and colon, readily felt through the abdominal wall in thin children. This feature is considered of considerable diagnostic importance by Felsen, since spasm of the intestine is an early and constant sign in the disease. Even enlarged mesenteric glands may occasionally be felt in young children. The question now arises as to the occurrence of diarrhœa. It might be thought to be a necessary concomitant of a dysentery infection, but in some of the patients in this series it did not occur, and after the subsidence of acute symptoms obstinate constipation for several days was not uncommon. Diarrhœa is, however, a valuable diagnostic sign, particularly if mucus and blood have been passed. The leucocyte count in the early stages is usually normal or even slightly lowered, an important point to remember in making a differential diagnosis.

There were a number of fatal cases in this outbreak of dysentery, and examination of the *post mortem* specimens showed the presence of an intense mesenteric adenitis, together with a general lymphoid hyperplasia in the bowel, and scattered

[1] *American Journal of Diseases of Children*, September, 1935.

inflammation of the mucosa of the appendix as well as the colon and ileum.

It is most important to realize that the dysentery bacilli have only a transitory existence in the intestine in these epidemics; at least these organisms are difficult to recover in the later stages, though they have been isolated even from patients who were suffering from constipation. Culture is, of course, a quite impracticable diagnostic method where the question of appendicitis has to be considered. Felsen summarizes the symptoms of a true suppurative appendicitis and of this form of dysentery. In appendicitis the onset is sudden, and apart from a history of food poisoning, diarrhœa is unusual, there is muscular rigidity of the abdominal wall, and no spasm of the ileum or colon is felt, the patient looks ill and has a leucocytosis, and his symptoms persist. In dysentery the onset is usually with an alleged food poisoning; diarrhœa is common though not invariable, and not necessarily severe; there is no muscular rigidity, but ileal or colonic spasm is often felt, the patient often appears relatively well, there is no leucocytosis, and his appendicular symptoms usually abate after the early stages, though a diarrhœa of increasing severity may then occur. In conclusion it may be pointed out that some of Felsen's cases were brought under his notice by surgeons who had operated on children for a supposed appendicitis, but who, having became acquainted with observations in this field, asked for a fuller investigation of these patients in order to clarify an obscure diagnosis.

INFANT WELFARE IN QUEENSLAND.

THE Director of Infant Welfare for Queensland, Dr. A. Jefferis Turner, has issued his ninth annual report for the year 1934-1935. The document is interesting and contains much that might with advantage be brought to the notice of the general public. From time to time medical practitioners at the head of government departments in the several Australian States, striving only for the welfare of the people, make reports to ministerial heads, and the reports find a permanent and undisturbed resting place among the files of the department. Sometimes the reports deal with glaring anomalies that can be remedied by organization or financial arrangement; sometimes they deal with more intangible matters. Dr. Turner, in his document, deals with matters that are more intangible than concrete. He is concerned with the falling birth rate in Australia, the importance of maternal and child welfare, and the problem of making Australia "mother-minded".

In the last twelve years the Australian birth rate has, Dr. Turner states, fallen by one-third. He also finds that if the period of twelve years is divided in three periods of four years, the fall has proceeded in a steadily accelerated ratio. He points out that the age-constitution of the population is changing and that in a few years we shall have proportionately fewer young adults. In other words, the number of potential workers will diminish, while the number of old people will increase. It is, he points out, a mathematical certainty that if the birth rate continues to fall at the present rate, we shall gradually approach the condition of a stationary population. Sir Raphael Cilento came to the same conclusion in his Jackson Lecture of 1933. The future of Australia, in Dr. Turner's opinion, depends on her women more than on her men; and here he holds that maternal and child welfare is inevitably the most important of all our State activities. From the point of view of the future of the race, most people will agree with him.

Dr. Turner thinks that many children in Queensland are poorly nourished and non-resistant to disease, because they are "milk-starved". There may be some difference of opinion on this point. He also points out that the Queensland Government allows to necessitous mothers during three months, partly before and partly after their confinements, the sum of five shillings a week in addition to other relief that they may be receiving. He holds that this commendable allowance loses much of its value because it is not correlated with other health activities, and he makes definite recommendations as to the way in which the proper correlation may be brought about. This part of the report alone demands that it shall not be put into a ministerial pigeon-hole. Dr. Turner's suggestions should be investigated and, if possible, put to the test.

The making of Australia "mother-minded" is a difficult matter. The physical and psychological welfare of children is the care of the women of Australia. We do not entirely agree that "a smile of faint pity" will greet the statement that the mother of a large family is a proud woman. We are, however, at one with Dr. Turner in his plea for an increasing interest by all women in children and in efforts that may be made for their welfare. The whole question has a wider bearing than Dr. Turner has given it, and he would be the first to agree with this statement; but we feel that progress would be made if his words were taken to heart.

PSYCHOGENIC FACTORS IN ASTHMA.

THOUGH the intricate problems of asthma may demand the specialized knowledge of the expert in allergy, an understanding of the factors involved will always be most necessary for general practitioners. In numbers of cases only an expert can arrive surely and quickly at the most likely external causes and thus lay down the correct desensitizing treatment, but this is not all. Follow-up figures from clinics of world renown prove what the general practitioner already knows, that relapse is not uncommon, and though he, like many doctors, may sigh inwardly when he hears the wheezing of the asthmatic in his consulting room, he is often left to attempt some solution of the ever-recurring problem. The psychogenic factor in asthma is, of

course, well known, but perhaps it is worth a few moments' thought. The patient may be sensitive to some inhalant irritant, he may need periodic desensitization, but there is no one more fitted to investigate the physical and psychical surroundings of his life than his regular medical attendant.

Less than two years ago the English Asthma Research Council made a grant to help to secure the services of a psychologist and a psychiatric social worker to aid in the study and treatment of asthmatics. This work is now bearing fruit, and C. H. Rogerson, D. H. Hardcastle and K. Duguid have published a review of their findings.[1] One of their most striking claims is that they have been able to limit the time, labour and cost involved in successfully treating certain patients suffering from asthma. One child had received prolonged treatment in convalescent homes at a total cost of nearly £200; perhaps if we too reckoned up the actual cost to the community in this and other types of invalidity the total would surprise and shock us. The patients who were considered suitable were studied with regard to their intellectual functions and their behaviour under test conditions, and, in the case of children, who made up the bulk of the patients, their reactions in the playroom were also observed. The children were chiefly boys, they were intelligent above the average, and were in many cases only children, the eldest of the family, or the first boy of the family. In many cases too there were special factors at work, such as parental overprotection, which so often cause nervousness and disorders in behaviour. With natural enthusiasm the authors consider that psychotherapy has at least as much to offer as any other available method of treatment in cases of this special kind. They point out that in children the two variable factors, the patient and his environment, are less fixed than with adults, and if the parents will cooperate much may be done. For example, the case of a boy, aged three years, may be cited; he sufferd from Besnier's prurigo and asthma. He was highly intelligent, restless and nervous, much fussed over by his mother, who always kept him sleeping closely beside her at night. Here cooperation by the mother allowed the child to make a satisfactory adjustment; he learned not to depend constantly on the mother, who just as constantly restricted his freedom, and soon made a good recovery.

The authors clearly believe that the psychological "level" at which the vegetative nervous function of the organism may be affected is only one of several. There is the biochemical level, as instanced by the precipitation of asthma by the specific irritant; then, too, there is the peripheral reflex level, of which an example is the influence of a septal spur or a polypus in the nose. Neither of these latter factors may be potent enough to cause an asthmatic explosion unless the psychological disturbance lowers the threshold of response. E. B. Strauss, in an accompanying article on the same subject, points out that some extremists regard asthma as a form of conversion hysteria. Such exaggeration is unnecessary. Due attention should be paid to all factors, none of which should be neglected. Whether it is true that some children are asthmatic as a secondary result of being over-protected, or, as Strauss thinks, that they are over-protected on account of their asthma, the fact remains that they often lose their attacks away from home and regain them on return. All practitioners who are interested in asthma, and perhaps in particular those who have perforce to treat it, should pay particular attention to the personality difficulties of the patient and any environmental stresses to which he may be exposed. In children this is of great importance. Attempts to cure asthma cannot begin too early, particularly when they also involve some righting of a maladjustment that may inflict a lasting disability on the young and helpless victim.

[1] *Guy's Hospital Reports*, July, 1935.

THE STAWELL MEMORIAL FUND.

WHEN the Stawell Memorial Fund was established it was hoped that the amount contributed would be sufficient to endow an annual prize for an essay that would be open to competition by all medical graduates in Australia of not more than three years' standing. So far the amount subscribed directly to the fund amounts to £340. To this the sum of £200 has been added from the funds of the one hundred and third annual meeting of the British Medical Association. Less than £20 has been received from members outside Victoria. The response to the appeal is disappointing. Unless a further substantial amount is forthcoming it will be impossible to carry out the original intention of founding an annual prize. All medical practitioners who valued the work of the late Richard Rawdon Stawell will surely wish to perpetuate his memory. Subscriptions may be sent to the Honorary Treasurer of the fund, Dr. C. H. Mollison, 41, Spring Street, Melbourne, C.1.

A REGISTRY OF INJURIES CAUSED BY PLANTS AND ANIMALS.

AT a conference held in Cairns under the chairmanship of Professor Harvey Sutton, of the School of Public Health and Tropical Medicine, University of Sydney, it was decided to form a registry of injuries caused by plants and animals in tropical Queensland. It was hoped that by this means complete information regarding such injuries would be obtained and that the incidence would be studied. Circulars were sent to all members of the British Medical Association practising in northern Queensland, but so far the response has been poor. Even when requested to report specific injuries, some members have not done so. A special appeal is hereby made to medical practitioners to take part in this investigation. The Registrar is Dr. H. Flecker, Box 404, Post Office, Cairns; all communications should be addressed to him.

Abstracts from Current Medical Literature.

GYNÆCOLOGY.

The Corpus Luteum Hormone.

K. EHRHARDT (*Monatsschrift für Geburtshülfe und Gynäkologie*, June, 1935) refers to the fact that, while the follicular hormone is found in many tissues and fluids, the corpus luteal hormone has only been obtained from *corpora lutea* or the human placenta. Recently he has had the opportunity to estimate the luteal hormone content of the vesicles in a case of hydatid mole. A mass of 1,500 grammes of mole yielded three rabbit units of hormone. He then discusses the theories of the causation of such tumours in relation to the association of lutein cysts of the ovaries with these growths. One school holds that the increased lutein formation is the cause of mole formation; others maintain that the tumour is caused by a diminution in the amount of luteal hormone. A third view is that lutein cyst formation has nothing to do with vesicular mole. The increase in lutein cysts is rather due to the effect of increased anterior pituitary hormone. The author's investigations show that while theoretically there should be an increase in the amount of pituitary hormone in the urine in cases of mole, in his case this was not so. Further investigations are needed before this problem is settled.

Chronic Atrophic Dermatitis of the Vulva.

FRED L. ADAIR AND EDWARD DAVIS (*Surgery, Gynecology and Obstetrics*, October, 1935) have undertaken a new description of a group of pathological conditions of the vulva. The authors claim that all the conditions described under the headings of leucoplakia, leucoplakic vulvitis, leucokraurosis and *pruritus vulvæ* can be included under a broader, more descriptive name: chronic atrophic dermatitis of the vulva. They consider that these various clinical manifestations represent different stages of a progressive disease which, if allowed to go untreated, will ultimately develop leucoplakia and possibly carcinoma. Among 9,682 patients examined at the University of Chicago clinics, this condition was encountered in 23—an incidence of 0·24%. The authors describe three or four stages of the disease. In the first stage the vulva is swollen, red, bruised and painful. In the second stage the atrophy begins. The skin appears thickened, indurated and leathery, owing to increasing thickness of the keratin layer. In the third stage, after some years, the skin becomes smooth, glistening, semi-translucent and parchment-like, with cracks and fissures which bleed easily. The outstanding symptom is pruritus, which is usually worse at night, leading to marked loss of sleep. Burning on urination may be troublesome. There is also dyspareunia and pain on examination. The progress of the disease is slow. Diagnosis is made by examination under a good light. The condition has to be distinguished from infections of the vulva, particularly yeast infection and other fungous infections of the vulva; parasites, such as pediculi or pinworms; and neurodermatitis. Syphilis and epithelioma must also be excluded in late stages. The treatment preferred by the authors is surgery. They have practised vulvectomy in nine cases with uniformly good results. They consider that irradiation in the majority of patients gave only temporary relief.

The Prognosis in Carcinoma of the Cervical Stump after Subtotal Hysterectomy.

J. R. NUTTALL AND T. F. TODD (*The Journal of Obstetrics and Gynæcology of the British Empire*, October, 1935) discuss the prognosis of cervical stump carcinoma. Their investigation shows that the poor prognosis usually given is not borne out by facts. In the past ten years 38 cases of stump carcinoma following subtotal hysterectomy have been seen; this is 2·5% of the total number of cervical carcinomata seen. From an analysis it is obvious that the cases fall into two groups. In one the carcinoma is detected within a few months after the operation; these are in fact cases missed at the time of operation and their prognosis is bad. But of the true stump carcinoma, that is, those occurring two or more years after the original operation, 50% show a five-year cure. Provided that carcinoma of the cervix is excluded clinically before hysterectomy is performed, the risk of carcinoma subsequently arising in the stump is small; statistics of a large series give the risk as from 1% to 1·6%, and 50% of these show a five-year survival rate when treated by radium. The authors do not consider that death from carcinoma of the remaining stump is a weighty argument in favour of the universal substitute of the total operation.

Irregular Shedding and Irregular Ripening of the Endometrium.

HERBERT F. TRAUT AND ALBERTA KUDER (*Surgery, Gynecology and Obstetrics*, August, 1935) have investigated a series of cases in which the main symptom is irregular shedding and irregular ripening of the endometrium. After reviewing the literature, the authors review the present knowledge of the physiology of the endometrium and then report a series of cases illustrating the subject matter of their article. In each case the uterine scrapings obtained at curettage have been carefully examined. The authors describe the form of endometrial bleeding, probably due to want of balance of the glands of internal secretion and most probably associated with failure on the part of the *corpus luteum* of the ovary. The patient does not shed the surface spongiosa of the endometrium normally, but has excessive blood loss. They consider that in other cases there is an irregular ripening of the *corpus luteum*, leading to an irregular shedding of the endometrium with associated hæmorrhage and functional bleeding.

Methods of Sterilization.

K. EHRHARDT (*Monatsschrift für Geburtshülfe und Gynäkologie*, August, 1935), in view of the eugenic sterilization laws of Germany, discusses the various methods available for this operation in women. Their number is legion and the end results are often far from satisfactory. At first he favoured the Madelener technique of crushing the tube, but now performs nothing but total excision of the tube, including the uterine portion. He points out that in many cases pathological conditions will be present which necessitate salpingectomy. In favour of total excision of the tubes is the fact that if gonorrhœa be contracted after the operation, spread upwards to the abdominal cavity is not likely to occur.

The Removal of Lymph Glands in Cancer of the Cervix.

FRED J. TAUSSIG (*The American Journal of Roentgenology and Radium Therapy*, September, 1935) presented a paper before the nineteenth annual meeting of the American Radium Society, urging the necessity for removing the lymph glands in the iliac and obturator areas in cancer of the second and third stages. He has made a study of the gland infections in first, second, third and fourth stage cancers. The author is of opinion that by a comparatively simple operation it is possible to remove the adnexa and the iliac and obturator glands without exposing the patient to severe surgical shock. He gives a series of tables and figures showing his results. He usually supplements the irradiation of the cervix with an abdominal implantation of gold radon seeds, of 1·0 to 1·5 millicuries in strength, into the pelvic connective tissue, giving a dose of an average of 1,200 millicurie-hours. He reports an analysis of twenty-six histories in which this technique was carried out.

Ectopic Pregnancy.

P. N. LOGWINSKY (*Monatsschrift für Geburtshülfe und Gynäkologie*, August, 1935) reviews 129 cases of extra-uterine pregnancy at the Kiew clinic. Inflammatory lesions of the tubes, generally of a septic nature, form the most frequent cause of this condition. The majority occurred in the ampullary portion of the tube and generally terminated in tubal abortion with resultant hæmatocele formation. Whenever possible, the tube should be resected, including a wedge from the uterus so as to prevent recurrence in the stump. In cases in which speed is necessary, simple resection may be performed and the stump

buried in the round ligament. Transfusion was required in some cases, but auto-transfusion was never performed if the blood had been lying free in the peritoneal cavity for more than four to six hours, because of the risk of infection.

Krukenberg Tumour of the Ovary.

H. G. MÜLLER (*Monatsschrift für Geburtshülfe und Gynäkologie*, July, 1935) describes a case of Krukenberg tumour of the ovary secondary to gastric carcinoma. There were few symptoms of the gastric neoplasm noted until near the end. The interesting point was that the metastatic growth was confined to one ovary and was not bilateral, as is customary. He believes that this occurred because only one ovary was functioning and was therefore ready for the implantation of the growth. The other ovary was small and atrophic.

OBSTETRICS.

The Excessive Prolan of Late Pregnancy Toxæmia and Eclampsia.

G. VAN S. SMITH AND O. W. SMITH (*Surgery, Gynecology and Obstetrics*, August, 1935) describe the technique and discuss the significance of the quantitative analysis for prolan of the serum of 68 women. The biological method of distinguishing placental from hypophyseal prolan is based upon the differential effect upon the ovaries of hypophysectomized rats. Prolan of placental origin causes interstitial cell hypertrophy and often *corpora lutea*, but no follicular activity, whereas pituitary transplants induce follicular growth and cyst formation. The authors have found that the placentas of toxæmic and eclamptic patients contain an excessive amount of prolan and tend towards low levels of œstrin as compared with the placentas of normal pregnancies. It is concluded that the excessive amounts of prolan previously reported in the blood and urine of toxæmic and eclamptic women, as well as the tendency towards low levels of œstrin, have their origin in the placenta; and it is suggested that the over-production of prolan by the placenta is related to and possibly the cause of eclampsia.

The Treatment of the Post-Hæmorrhagic State.

WILLIAM HUNTER (*The Journal of Obstetrics and Gynæcology of the British Empire*, October, 1935) discusses the treatment of the condition which follows the rapid loss externally of a sufficient quantity of blood to give rise to symptoms and signs. The author assumes that the hæmorrhage has ceased and that its cause has been treated. In the milder cases glucose by mouth and tap water by rectum and by the subcutaneous route are used. In the more severe types a solution of gum glucose is used with ephedrine added. The solution has the advantage of supplying nourishment and raising the blood pressure without an objectionable bulk causing distress to the heart and overloading the capillaries. At the same time as this injection is given, an intramuscular injection of insulin is also given (one unit of insulin for each three grammes of glucose). The author points out that the intravenous administration of fluid in excess of requirements may prove harmful by increasing transudation from the capillaries, and by diluting the residual blood may predispose to stagnation in the capillary reservoir and reduce the oxygen-carrying power of the circulating blood. Morphine has not yet been surpassed as a sedative drug; by quieting the patient it prevents further exhaustion. The administration of cardiac stimulants has not yielded any good results in the author's hands. Before the blood volume has been restored, the exhibition of drugs with a view to slowing the heart seems to be misdirected therapy, based upon wrong principles, as the veins are relatively empty and, being inadequately filled, the heart is compelled to contract upon a subnormal volume of blood and therefore beats more rapidly; the treatment is to restore the volume, and the heart will take care of itself.

Observations on Malaria Occurring in Association with Pregnancy.

G. A. W. WICKRAMASURIYA (*The Journal of Obstetrics and Gynæcology of the British Empire*, October, 1935) describes his observations at the De Soysa Lying-In Home, Colombo, of the recent epidemic of malaria occurring in association with pregnancy. He is able to show six cases in which the placental barrier was broken down and the child became infected *in utero*. Although the parasite was demonstrable in the blood and tissues in these six definite cases, in the author's opinion it is conceivable that congenital infection may exist without showing any clinical signs, and parasites may not at first be demonstrable in the blood. Many children are born dead as a result of congenital infection; however, all stillbirths are not caused in this way. The majority occur not from congenital infection, but from infection of the placenta. Owing to the sluggish circulation in the intervillous spaces the parasites tend to be aggregated in the placenta. Stained smears from the placenta always show a much heavier concentration of parasites than the peripheral blood, and it is not uncommon to have placental infection long after the disappearance of parasites from the peripheral blood. The factors which influence the transplacental infection of the fœtus are: first, the type of infection, in all cases the malignant tertian (*Plasmodium falciparum*), and, secondly, damage to the placenta. When sections of the placenta are examined in massive infections, the possibility of some breakdown of the protective mechanism is realized. The third factor is the efficacy of the treatment adopted; in all the positive cases no treatment had been adopted. Malaria is liable to cause interruption of pregnancy before term, and intrauterine death of the fœtus either from the high temperature or the placental infections; and it predisposes to toxæmia of pregnancy. The onset of coma in cerebral malaria seems to inhibit the uterine contractions, leading to a long labour. Malarial patients are more prone to develop sepsis. Pregnancy aggravates malaria to a marked degree. The strain of labour not only activates a latent malaria, but intensifies the effects of an existing attack. Fatal collapse often follows delivery. In the author's opinion, quinine in doses of 0·3 to 0·6 gramme (five to ten grains), three times a day, is still the best drug in the treatment of malaria associated with pregnancy.

Anephrogenesis.

F. J. SAMBROOK GOWAR (*The Journal of Obstetrics and Gynæcology of the British Empire*, October, 1935) from the Bland-Sutton Institute of Pathology, Middlesex Hospital, London, reports a case of complete absence of both kidneys in a fœtus without any other abnormality. The chief interest in the case lies in the fact of the association of bilateral anephrogenesis with a normal amount of *liquor amnii* and in speculations concerning the origin of the *liquor amnii*. The numerous cases of malformation of the kidney with normal amniotic fluid on the one hand, and normal kidneys with oligohydramnios on the other, speak against a direct cause and effect between renal malformation and oligohydramnios. Probably the liquor arises as a secretion of the amniotic epithelium and is added to by a transudation of fluid from the maternal blood; normally the fluid may be augmented by the excretory products of the fœtal kidney during the latter half of pregnancy; this, however, is not an essential factor in its formation.

Uterine Inertia.

H. WINKLER AND H. VETTER (*Monatsschrift für Geburtshülfe und Gynäkologie*, August, 1935) discuss the treatment of uterine inertia with special reference to the calcium content of the blood. They consider that the best method of sensitizing the uterus is by the injection of quinine and calcium, and they have used the preparation of the Sandoz firm. It was very useful in cases of premature rupture of the membranes and in particular in cases of primary uterine inertia in the first stage. They advise doses of four cubic centimetres, to be repeated if necessary. It was of little use in secondary uterine inertia unless combined with pituitary extract.

British Medical Association News.

SCIENTIFIC.

A MEETING of the South Australian Branch of the British Medical Association was held at the Anatomy Theatre, University of Adelaide, on November 28, 1935, DR. D. R. W. COWAN, the President, in the chair.

Contraception.

DR. W. RAY, in opening a discussion on contraception, dealt with the medical indications. He said that these were in the main coincident with those for therapeutic abortion, and beyond that they accorded with the individual wish. The field, of recent years, had become wider, and more and more the personal opinion of the medical practitioner and the individual wishes of the patient were being considered. It was a question how far the scope should be allowed to extend.

DR. MARIE BROWN said that it was necessary for the welfare of a state that the aggregate of family life should be both healthy and happy. In order to obtain this under existing conditions of civilized life, some form of contraception was required. The indications for the practice of contraception might be classed under four headings: (i) economic, (ii) medical, (iii) psychological, (iv) domestic. Contraceptive advice and methods of an approved nature should be available to the whole community when any of these conditions indicated the necessity.

Dealing with economic conditions indicating contraception, Dr. Brown said that in large communities, especially during periods of depression, married couples who were on the dole, unemployed, or receiving less than a living wage, should be enabled to limit the number of their children or space them in order that the existing children might have a better chance of healthy upbringing and that the considerable mental stress already existing in the home might not be increased by the fear of additional pregnancies. Efficient methods of contraception applied under these conditions would relieve the State of a considerable financial burden.

Dr. Brown did not deal with the medical indications for contraception, as this phase of the subject had been dealt with by Dr. Ray.

Referring to the psychological indications for contraception, Dr. Brown said that, apart from actual mental disease in the parents or family, there were many psychological conditions which indicated the use of contraceptive measures. In families in which the bearing of too many or too closely spaced children led to mental stress in either parent or in the existing children, some relief should be afforded. Overcrowding of the family in a small dwelling, ill-health and excessive fatigue of the mother, noise and other incidental irritations preventing the father from resting when he returned from work, were some of the factors which produced disharmony and psychological stress detrimental to all concerned, and these might be lessened, if not entirely eliminated, by the control of fertility.

Turning to the domestic indications for contraception, Dr. Brown said that conditions under which the bearing of additional children would tend to disrupt the basic harmony of the household or cause a mental separation between husband and wife, called for the use of some method of limiting the family. The mother of many small children could not find time or energy to accompany her husband in his social activities; she was overtired and therefore less easily aroused sexually, and the fear of added children made her shun intercourse. Conditions of this type led to estrangement, and the stress involved was reflected upon the children who lived in the strained atmosphere. A reasonably safe method of contraception introduced into such a family led to improvement in mental and physical health and might prevent a more serious breach between the married partners. Contraception was advisable in the first few months of married life. The newly married couple had many adjustments to make before their new life settled down to an even course. They had to get to know each other, to bear disappointments and to learn to give and take. If the bride became pregnant at once, she was affected by the disabilities of her condition and therefore less likely to adjust herself happily to the new partnership.

At the approach of the menopause contraception was also indicated in some cases. A woman at this period of her life was apt to be nervous, unstable and easily fatigued. The irregularities of the menstrual function might be mistaken for the onset of an unwanted pregnancy. The existing family was already grown up, and another child would be looked upon as a calamity and possibly a disgrace. It was better to avoid the added stress of fear of pregnancy by adopting contraceptive methods during these years of change.

The choice of contraceptive methods was important. Contraceptive methods should conform to the following requirements: (i) They should be reasonably safe. (ii) They should not be injurious to health. (iii) They should interfere as little as possible with the normal course of sexual activity. (iv) They should not offend the æsthetic senses. (v) They should be cheap.

Contraceptive methods of some kind were almost universally used. History recorded their use in the past, and they were practised by many primitive peoples. There was no method which was absolutely sure, and the protection afforded depended upon the method chosen and the intelligence of those using it.

Complete abstinence from sexual intercourse was no doubt the only safe method. This might be practised occasionally in a few cases with no detrimental result, but for the majority of people it was impossible to carry out under our present state of evolution without causing considerable stress of mind and the possibility of leading to sexual substitutes which were antisocial and harmful in some way.

The intermenstrual "safe period" was not reliable, for although there was probably a short period of sterility in each woman's menstrual cycle, there had not yet been found a way to define it. As the sexual activities in women were most acute during and immediately after menstruation, a frequent postponement of intercourse to the less fertile intermenstrual period was unsatisfactory and might cause mental and physical stress.

Incomplete intercourse of various kinds was a common method of family limitation. It was unsafe and almost always led to physiological or psychological trauma of some kind and was not to be recommended.

Douching after coitus was quite unreliable, and, as strong disinfectants or hot lotions were used, might be actually injurious. The condom was a harmless and easy method of procuring safety, used correctly, but was unacceptable to many people, either physically or psychologically, and its use interrupted the normal course of the sexual act.

Intrauterine or intracervical contrivances, such as the wishbone or gold spring pessary, the gold or silver ring and the horsehair ring, were not really contraceptives, but rather abortifacients; they often failed in their purpose and were often the cause of intrauterine disease.

Occlusive pessaries of many varieties were on the market. They were generally of two kinds—those which fitted closely on the cervix and those which shut off the upper part of the vagina. The former were difficult to apply and might not retain their position and were therefore not reliable. The latter, of the "Dutch cap" type, were easy to apply and difficult to dislodge. They were harmless and comparatively inexpensive.

Chemical applications were very popular today and were of numerous kinds. Foaming tablets, jellies, foaming jellies and simple suppositories containing quinine, lactic acid and other ingredients, were all extensively used. They were not reliable when used alone; some of them were definitely irritating and quite unsuitable for the newly married woman in whom some degree of vulval injury might be present.

The safest and best method of contraception was a combination of several things. A well chosen "Dutch cap" occlusive pessary, fitted to the patient, used in conjunction with a chemical tablet or jelly and followed by a generous warm water douche on removal, would afford a very high degree of protection and could be applied and removed at a time distant from coitus, no interruption of the act thus being caused. "Dutch cap" pessaries were not suited to the newly married woman unless she had previously had her vulva dilated. Those women who had had children and had a relaxed vaginal outlet might not be able to retain this kind of pessary. In these cases other methods should be used, preferably the condom with, when possible, a chemical jelly previously applied to the vagina.

The future development of contraceptive practice seemed to be along the line of endocrine research. There were indications that some method of gland regulation or administration might be discovered to provide a temporary and safe immunity to pregnancy.

There was need of organized study and teaching of contraception, in order that safe methods might be available to everyone who needed them. The extended application of satisfactory contraceptive methods would not interfere noticeably with the population, as most married people desired children and would have them if possible. Freedom of access to contraceptives would, however, reduce the existing high rate of criminal abortions and so help to lessen maternal morbidity and mortality.

Anæsthetic Apparatus.

DR. GILBERT BROWN exhibited Magill's tracheascope, which was used for the administration of gaseous anæsthetics in the operation of lung lobectomy for bronchiectasis. It comprised three portions. It consisted of a modified Magill's laryngoscope with the battery in the handle. Fitting within this was an endotracheal tube; the central part of this was made of flexible metal spring tubing covered with rubber Paul's tubing; the lower part was screwed on and was made of metal in three sizes; the upper part had a tube at right angles, through which the anæsthetic gases were conveyed. The third portion was a double-channelled gum elastic catheter, near the tip of which was a small inflatable rubber bag. The apparatus was employed after the throat had been cocainized and the patient was anæsthetized. The endotracheal tube was first passed and then the catheter was inserted through it into the bronchus of the affected lung, the small bag was inflated to block the bronchus and the laryngoscope was removed. The upper part of the endotracheal tube was closed by a rubber cap, which was threaded on the catheter, and the gas machine was attached to the right-angled tube at the side. This allowed the affected lung to be excluded so that there was no leakage of gases if the lung was torn, and prevented any pus from spilling over into the bronchus of the sound lung, and also permitted any secretion to be removed through the catheter by suction without interrupting the course of anæsthesia.

Dr. Gilbert Brown also demonstrated the Harry Daly endotracheal ether apparatus. The whole apparatus was built into a leather carrying case and consisted of a very silent electric universal motor, a continuously oiled blower. The ether tank was of the "blow-over" type, fitted with a thermometer and a heating element, to be used if the temperature of the ether became too low. A simple and effective ether trap was provided, and this was supplied with a drain cock. There was also a sparklet carbon dioxide supply with a regulating attachment, a tube for connexion with an oxygen cylinder, a mercurial manometer, and a safety valve which might be set to blow off at any desired pressure up to forty millimetres. The speed of the motor was regulated by a rheostat, and the strength of ether vapour was also regulated by a tap. The heating element consisted of two electric light globes worked by different switches so that a small or great amount of heating might be used; a "tell-tale" light was shown on the panel when the lights were switched on. The apparatus might be used for either insufflation or inhalation of ether, and when running under normal conditions was almost noiseless.

A MEETING of the New South Wales Branch of the British Medical Association was held at the Sydney Hospital on July 18, 1935. The meeting took the form of a series of clinical demonstrations by members of the honorary staff. Part of this report was published in the issue of January 25, 1936.

Artificial Pneumothorax Supplemented by Phrenic Paralysis.

DR. M. P. SUSMAN showed a patient, aged twenty-nine years, who had an artificial pneumothorax started in January, 1935, by Dr. Hay. He had had several attacks of pleurisy and of hæmoptysis. Tubercle bacilli were found in the sputum, and radiograms showed cavitation and fibrosis in the upper zone of the right lung. Satisfactory collapse of the diseased area was prevented by adhesions. On June 14 Dr. Susman made a thoracoscopic examination, hoping to divide the adhesions; but they were found to be too thick and vascular to be safely cut, so the phrenic nerve was crushed. Dr. Susman explained that the object of this was to produce a temporary paralysis of the diaphragm, with subsequent reduction in size of the corresponding hemithorax, a smaller respiratory excursion and lessened pull on the adhesions. Dr. Hay was continuing the refills. Cough and sputum had both diminished, and the general condition was better.

Bilateral Bronchiectasis.

Dr. Susman showed a man, aged fifty-three years, who had had many attacks of quinsy and bronchitis over a period of years, with occasional attacks of dry pleurisy. He now had a chronic cough and expectorated several ounces of offensive sputum every day; but his general condition was surprisingly good, and he was able to do manual work. Recently he had had hæmoptysis. Repeated examination of the sputum revealed no tubercle bacilli. Physical signs were few and inconstant, but areas of fibrosis were seen in plain radiograms. Dr. Susman then injected lipiodol into the bronchial tree, and the bronchograms revealed advanced and bilateral bronchiectasis. He had since been treating the patient by aspirating pus from the dilated bronchi through a bronchoscope once a week, with the occasional instillation of several cubic centimetres of 1 in 30 "Dettol". The patient declared that his sputum was less offensive and was decreasing in amount (it was being measured daily), and that his appetite and joy of living had returned.

Bronchial Obstruction Probably Due to Neoplasm.

Dr. Susman's last patient was a man, aged forty-nine years. He was a patient of Dr. G. Bell. His illness dated from an apparently acute pulmonary affection some fifteen months ago. Bronchograms made at another hospital clearly showed a block in the right lower lobe bronchus; a bronchoscopic examination at the same hospital was unsatisfactory on account of bleeding from the site of obstruction. Dr. Susman made a bronchoscopic examination at Sydney Hospital and a similar profuse hæmorrhage occurred. There were physical signs of obstruction to the right lower lobe bronchus; but the most striking sign was a vascular hum over the medial part of the atelectatic lobe. Dr. Susman explained that various opinions had been given about the significance of this, and also about the advisability of operation.

Malignant Disease of the Prostate.

DR. R. H. BRIDGE showed a patient who was suffering from carcinoma of the prostate gland with secondary invasion of the *corpora cavernosa*. He said that carcinoma of the prostate gland was very common, whereas this complication was extremely rare. Apparently the growth in the gland invaded the prostatic venous plexus of

Santorini and from there spread by way of the veins of the penis to the erectile cavernous tissue.

Briefly, the history was that in February the patient noticed a hard nodule at the end of the penis on the right side, near the glans. This had grown rapidly and others had appeared on each side. The *corpus spongiosum* was free. Clinically there was the typical stony hard mass in the prostatic area, with outward extension to the peri-prostatic tissues and upwards to the vesicles and bladder base. There were a number of stony hard nodules in each *corpus cavernosum*. There was already some obstruction to the urinary outlet.

The condition somewhat resembled another rare disease of the penile erectile tissue known as plastic induration of the penis.

Pathological Specimens.

Dr. Bridge also showed a number of pathological specimens, illustrating a variety of diseases of the urinary organs. Most of these specimens had been obtained at operation, and with them were shown the urograms which led to the diagnosis.

There was an interesting specimen of an hydatid cyst of the lower pole of the kidney, with a stone in the pelvis. The patient had been passing daughter cysts down the ureter for about two years. He noticed that after an attack of colic he would pass a piece of "jelly". The calculus was to be carefully sectioned to see if there was any hydatid membrane in its nucleus. There were a number of specimens illustrating kidney destruction due to calculi. There were many specimens showing the various types of newgrowth of the kidney.

Renal tuberculosis was well represented in its various phases from the earliest erosions of the papillæ to complete destruction by caseation or pyonephrosis.

A *post mortem* specimen showed both kidneys, both ureters, both Fallopian tubes and the bladder extensively involved, and yet the patient, while anuric for three days, flew from Brisbane to Sydney.

There were two specimens of particular interest illustrating a congenital anomaly, namely, ureteral ectopia. One of these has been already described in this journal. Dr. Bridge expressed the hope that the other would be described later.

Fracture of the Neck of the Femur.

DR. JOHN HOETS showed a patient, aged eighty-four, a female, who had sustained an intracapsular fracture of the neck of the left femur one month previously. The fracture had been dealt with by closed reduction, checked by antero-posterior and lateral skiagrams, and fixation by Smith-Petersen nail. The patient showed free and almost normal range of movement of the affected hip, crossed the affected leg over the other in the sitting position, and walked with the assistance of a hand under the arm without calliper or crutch. The operation had been done under spinal anæsthesia one week after the accident. The apparatus used was demonstrated, namely, a metal traction apparatus (Lemon), with pelvic rest and perineal post made of wood to allow of skiagrams being taken without altering the patient's position, the cassettes being placed under the pelvic rest and in front of the perineal post for antero-posterior and lateral skiagrams of the femoral neck respectively. Stress was laid on the necessity for good lateral pictures—a curved cassette was used for the purpose—to enable the operator to be certain of accurate reduction before the insertion of the three-flanged Smith-Petersen nail. Other special instruments used in the operation were shown: a drill, after Matthews, of New York, for inserting the Kirschner wire, and a set of instruments designed by Dr. Thomas King, of Melbourne, which facilitated the accurate placing of the nail.

A Mastoid Operation.

DR. RICHARD FRANCIS'S first patient was a female, aged twenty-four years. She was first seen on June 12, 1935, complaining of right otorrhœa of many years' duration, of severe pain recently, and of a mastoid tenderness on palpation. X ray examination revealed sclerosis. She was kept under observation for five days, then operated upon on June 17, 1935. The lateral sinus was placed anteriorly, a very small antrum was found containing mucopus under tension, but no daughter cells. A modified radical operation was performed on the lines laid down by Heath. Dr. Francis said that Heath's method was successful in cases such as this in which a small sclerosed antrum was present. The hearing was never further impaired, as sometimes happened in radical operations, and was frequently greatly improved. The only disadvantage was that to get successful epithelialization, expert daily dressings were necessary till all healing was completed.

Frontal Sinusitis.

The second patient was a female, aged twenty years, who had had tonsils and adenoids and nasal polypi removed previously. A radical operation on both antra and removal of polypi were performed in October, 1934. Her symptoms of constant purulent discharge anteriorly and posteriorly, nasal obstruction, and cough with expectoration had been present for over nine years. She had had pneumonia with empyema at the age of three years, and her chest showed marked chronic bronchitic changes. She returned home to the country, but returned in February with constant and profuse discharge still present bilaterally, coming from the frontal sinus areas. X ray examination showed pansinusitis. The anterior ethmoid cells were curetted, and the fronto-nasal canal was enlarged on February 4, 1935. A week later, as there was no diminution of the discharge, a modified radical operation was performed on both sides. Pus under tension and polypi were found, the cavities were cleared of all mucosa, the floor being removed, and the wounds were closed with drainage tubes through the fronto-nasal canals. The wounds healed by first intention, but three weeks later broke down at the medial edge on the left side and later on the right.

It had been hoped that the wounds would heal again, but on May 22, 1935, the left frontal sinus was treated very radically, the whole of the anterior wall being removed. As there was necrosis on the posterior frontal wall, the wound was left open and packed. On June 10, 1935, the right frontal sinus was dealt with radically in the same way, but the wound was closed at the time. On June 24, 1935, the left frontal wound was closed.

Dr. Francis said that an interesting point about this patient was that, in spite of the long-standing purulent pansinusitis, headache had never been a symptom. In this case the primary suture of the right side definitely showed a better cosmetic result than the left, which was allowed to granulate prior to closing.

Skiagrams.

DR. D. G. MAITLAND showed a series of X ray films which, amongst others, included one of a large hydatid cyst of the left lung in a boy of sixteen years; an acute miliary tuberculosis of the lungs; a carcinoma of the œsophagus, with barium passing out into both bronchi; an osteogenetic sarcoma of the lower end of the femur; films illustrating various types of gall-stones; a carcinoma of the pylorus; and a large carcinomatous ulcer of the lesser curvature of the stomach.

Retinal Detachment.

DR. F. GREGORY ROBERTS showed a man, aged forty-five years, whose right eye had been operated on in January, 1934, for retinal detachment involving the whole of the outer half of the retina, including the macula, and almost the whole of the lower and inner quadrant. At the time of operation the detachment had existed for at least six months, the patient could merely detect hand movements at the outer part of the visual field of the right eye, and while he looked straight ahead everything appeared black. When the patient was first seen, fundus details were not discernible owing to the large billowing folds of the detachment. After one month in bed a large horse-

shoe rent in the upper and outer quadrant of the retina, surrounded by very unhealthy looking retina, could be seen.

The operation was undertaken after a preliminary rest in bed of exactly twenty-eight days, the patient being on his back during the whole of that period. A diathermy operation was performed after the manner of that first described by Larson, of Stockholm, in the *Archives of Ophthalmology* during 1932, a current ranging between 100 and 120 milliampères being employed. The external and inferior recti were divided to obtain a good exposure of the sclera over the site of the detachment; both muscles were subsequently sutured back into position. The subretinal fluid of the detachment was evacuated through a two millimetre trephine opening in the sclera at the outer side of the inferior rectus and eleven millimetres from the limbus. From the second day after operation until he got up the patient was nursed in a sitting position. Now, approximately eighteen months after operation, the retina was completely reattached and although the detachment involved the macula, the vision was $^{6}/_{24}$ with glass (−5·5 spherical); the vision in the left eye was $^{6}/_{6}$ with glass (−4·5 spherical).

Muscle Transplantation for Convergent Squint due to Sixth Nerve Paralysis.

Dr. Roberts also showed a woman, aged twenty-three years, who was operated on early in June, 1935. At the time of operation the patient had a left convergent strabismus of about 60° owing to an over-action of the internal rectus muscle, there being no movement outward whatever owing to paralysis of the external rectus. This latter condition was supposed to have developed as the result of an injury at the age of five years. The operation was performed under general anæsthesia, the internal rectus was tenotomized, the superior and inferior recti were split longitudinally in half, the outer half of such muscle was divided at its insertion and reattached to the insertion of the paralysed external rectus by means of buried silk sutures. To secure a good exposure of all four recti muscles the conjunctiva was completely divided six millimetres from and parallel with the limbus. Both eyes were kept completely tied up for two weeks.

The patient was a high myope and wore glasses. She had good movement in the eye and could abduct it about 15° past the mid-line of the orbit.

Demonstration of Squint Training Apparatus.

Dr. Roberts demonstrated squint training apparatus. He said that squint training aimed at: (i) improvement in vision in the squinting eye, which was practically always amblyopic or lazy from disuse, and (ii) the production of binocular vision. Squint training apparatus usually consisted of two symmetrical parts, one for each eye. Each half generally held a slide which could be illuminated either by transmitted or reflected light. The intensity of the illumination was controlled independently on each side by means of independent rheostats, so that the lazy eye could be given a strong illumination and the normal eye a weak illumination to balance the image seen and to assist the production of binocular vision. Binocular vision was divided into three grades: (i) simultaneous macular perception, (ii) fusion, (iii) stereoscopic vision, and therefore there were three types of slides, used according to the grade of binocular vision which was being cultivated.

The first set of slides represented simultaneous perception graded in increasing complexity. They were the simplest type of slide, and did not require any blending of images, but only simultaneous vision of dissimilar objects with the two eyes.

The second set represented true fusion. These required true fusion so that the full picture might be seen. The pictures were exactly similar, except that some part of each design was omitted in one and a different part in another.

The third set represented stereoscopic vision. These were similar, but slightly dissimilar designs, enabling the patient to appreciate solidity and judge distances. This was the highest grade of binocular vision and was used in estimating size, position, distance, relief and speed.

Fracture of the Mandible.

DR. W. STEWART ZIELE demonstrated twenty-four fractures of the mandible. He said that the causes of fracture were predisposing and exciting. In his several years on the staff of the hospital he could remember only two from predisposing causes. One was due to carcinoma, and one to osteomyelitis. Although rickets was probably the commonest, he had not seen one.

In the collection of cases shown, every type of fracture was depicted; the skiagrams, Dr. Ziele said, were a revelation of the excellence of the X ray department. There were greenstick closed, compound, comminuted, impacted and depressed fractures, and the wide range of the illustrations revealed fractures of every portion of the mandible. When the underworld was more adjacent to Sydney Hospital, the average number of jaw fractures treated was in the vicinity of three each week. Dr. Ziele wondered whether the average could be exceeded by any other bone; perhaps the jaw was more exposed to violence, and was more often fractured than any other facial bone; sometimes the jaw acted somewhat as a guard to the rest of the face.

An accurately made interdental splint fulfilled the requirements of fixation once it was inserted, yet the making of a splint demanded considerable experience and at least two days' time devoted to nothing else; it involved some expense. Therefore, for the average fracture, they did not depend on splints, but employed wire loop ligation of the lower to the upper teeth, thus reducing and fixing the fracture the first time it was seen.

Radicular Cyst.

In demonstrating a female patient who had suffered from a radicular cyst, Dr. Ziele said that symptoms usually did not occur until the growth had attained considerable size. Quite a large amount of tissue had been destroyed and three teeth involved, to one of which the cyst was attached. Removal of cyst without disturbing fluid content was the objective. The fluid was mucilaginous in consistency and might or might not be infected, and when so infected was yellowish straw coloured, sometimes cheesy and green. There was no standardized form of curetting in these cases, or conception of when curetting was indicated or how far it should be carried out when it was called for. Practically all quiescent chronic periapical masses fell into one of three categories: granuloma, perialveolar abscess and radicular cyst. It was not always possible, but was extremely difficult, to differentiate from the radiogram between the three types, nor was there a clear-cut line of demarcation between them. The granuloma might be in process of breaking down into the abscess, or the abscess might be becoming cystic.

One rule was fairly definitely set down: that in acute cases, as shown here, if extraction was done, and the cyst remained, as was not impossible, no attempt at all should be made at curettage; there was a big risk of an impingement upon and injury to the inferior dental canal or mental foramen.

In the case demonstrated a large half-moon gingival incision was made, and sufficient bone was removed to expose the cyst, and the pathological mass was removed. When the cyst was attached to the tooth root end, amputation of the root end was essential. The blade curette was used and presented a distinct advantage over the spoon type which dental surgeons had inherited from general surgeons. Being thin, it could be used with either concave or convex surface towards the socket wall, and it should be sufficiently sharp to detach the many attachments. With the concavity of the blade towards the bone, the curette was reversed and used as a spoon to scoop out tissue intact, enucleating the growth in its entirety. If one failed in this, there was certainty of post-operative reactions, such as osteomyelitis, and unless one could be sure of complete removal, it was better to do no curetting and to depend upon natural efforts.

In the case demonstrated the procedure as described had been followed, and the patient still had her incisor tooth. Except for some œdema, there were very little discomfort and post-operative pain.

A MEETING of the Queensland Branch of the British Medical Association was held at the Mater Misericordiæ Children's Hospital, Brisbane, on October 4, 1935. The meeting took the form of a series of demonstrations by members of the honorary staff.

Abscess of the Liver.

DR. H. J. WINDSOR showed a child, aged two years, who had been admitted to hospital on August 14, 1935. There were seven other children in the family, all of whom were healthy. This child had had no other illnesses. Seven weeks previously she had complained of pain in the right side, particularly if lifted up suddenly. A swelling was noticed three days before the child's admission to hospital, when she stood up. She had been feverish on and off, and refusing her food for seven weeks. She was constipated and suffered from frequency of micturition at night. She was thirsty.

On admission the temperature was 37·2° C. (99° F.), the pulse rate 128 and the respirations were 32 per minute. There was a large tender swelling on the right side of the abdomen, reaching to the level of the iliac crest. The mass was localized and was more tender about the centre of the swelling. A blood count revealed 21,000 leucocytes per cubic millimetre, and it was decided to investigate the swelling. There had been no discharge *per vaginam* and no history of diarrhœa. The throat was quite clear and the urine was normal.

Laparotomy was performed; a right rectus incision was made and examination revealed a probable abscess of the right lobe of the liver; this was verified by puncture. The abscess was drained and the wound closed; *Staphylococcus aureus* was cultivated from the pus. The abscess drained from August 14 to August 24. The Wassermann test gave a "++" reaction. The patient was discharged from hospital on September 20 and was instructed to report to the out-patient department. The interesting feature of the case was that a solitary abscess was found in the liver, and no reason for its presence could be found in the abdomen. The diagnosis made was an infected gumma; there were no features of the swelling to support this, except the positive reaction to the Wassermann test. At present the patient was having antisyphilitic treatment.

Appendicectomy after Abscess Drainage.

Dr. Windsor's second patient was a boy, aged nine years and eight months, who had had an appendiceal abscess drained on February 15, 1935. He was admitted to hospital for appendicectomy on June 18, 1935, and operation was performed on June 20. At operation the scar of the previous operation was excised, being very difficult to remove. The appendix was found to be retrocaecal and adherent; it was freed from adhesions with difficulty and was removed and the incision was closed. On July 6, 1935, the child complained of abdominal pain in the morning; an enema was given with a good result. In the evening the abdomen was distended; another enema was given without any result. Operation was therefore decided on. An ileostomy was performed and a catheter put into the ileum. On July 7 the tube was not draining well, so it was syringed; the stomach was distended, and a duodenal tube was passed into the stomach and left in. On July 10 an enema was given with no result, but later the bowels were well opened. On July 11 the duodenal tube was removed, and on July 18 the catheter was removed from the ileum. By July 30 the wound was healed and the child was discharged well on August 9. He had a ventral hernia at the lower end of his wound. An X ray examination of the alimentary tract was done and there was no sign of any obstruction, the contents flowing quite freely and passing into the transverse colon in six hours.

Tumour of the Humerus.

Dr. Windsor's third patient was a boy, nine years of age, who was admitted to hospital on August 17, 1935. Eight months previously the parents had noticed a small swelling on the upper part of the left arm, which had increased in size. There had been no pain at any time. Operation was performed on August 28, 1935, and the tumour was removed from the humerus. On August 30 the patient was comfortable, there was no discharge and the splint was readjusted. On September 30 the arm was examined by X rays and the condition of the bone was found to be satisfactory; there was still some bowing present, but the humerus was stouter.

Post-Nasal Obstruction.

DR. P. A. EARNSHAW showed a child, aged four years, whom he had first seen when three weeks old. He was then suffering from a bad attack of whooping cough, from which he eventually recovered. He was again seen in April, 1933, when he had what appeared to be a complete obstruction of the back of his nose, due to an exceedingly large pad of adenoids. His tonsils were also greatly enlarged. A few days later Dr. Earnshaw removed the tonsils and adenoids. About ten weeks later the child's nose was very stuffy and he again commenced mouth breathing. On examination it was noticed that the back of the nose was again completely obstructed with a mass of adenoids. These were removed in August, 1933. The patient consulted Dr. Earnshaw again in January of 1934 for a recurrence of his old symptoms and was found to have just as large a pad of adenoids as on the previous occasions. He was referred to Dr. Graham Brown, who reported that the boy had a large amount of almost fibrous tissue in the nasal pharynx, sessile in character. Dr. Brown thought that the recurrence over such a short period suggested something of the fibromatous or even the sarcomatous type. An anæsthetic was suggested with the idea of removing the adenoids again for microscopic examination. The parents did not carry out this advice, but consented to another operation in October, 1934, when the adenoids were removed. These were sent to Dr. Duhig for microscopic examination. Dr. Duhig reported that the specimen consisted of normal lymphoid tissue, actively growing. No fibrous tissue was present. There was no evidence of malignant disease. Since then the adenoids had recurred, though not as badly as formerly. At present the child had ringed eyes, nasal catarrh, and suffered badly from nightmares. There was some deafness. The question was what more could be done for the boy beyond removing the adenoids. Radiation of the nasal pharynx had been recommended.

A second child, aged five months, was also shown. This baby had been first seen in May, 1935, when one month old. The mother stated that the baby had, soon after birth and ever since, a yellowish discharge from the nose. On examination the right eye was bloodshot. The tongue was drawn back against the soft palate, the breathing very noisy and difficult. There was no air whatever passing through the nostrils. On the assumption that the child had an obstruction at the back of his nose, it was referred to Dr. Graham Brown, who instilled lipiodol drops into both nostrils. An X ray picture was then taken, the picture revealing that no lipiodol passed from the nose into the naso-pharynx. An anæsthetic was given and it was discovered that there was a bony obstruction right across the posterior nares. An opening was forced through this obstruction, and ever since then dilating sounds had been passed until the child had a fair airway through the nose.

Cretinism.

Dr. Earnshaw showed a third patient, a boy of one year. This boy had not been well from birth. The mother stated that he was presumed to have had a cerebral hæmorrhage; he had been very pale and had had green constipated motions since birth. It had been difficult to make him take his food. In January, 1935, he had been attended

by a medical man in north Queensland, who recognized him as being a cretin and administered 0·3 gramme (five grains) of thyreoid extract a day for five weeks. The child became very ill and the thyreoid extract was stopped. For the last six weeks he had had a bad cough and a stuffy nose and was very constipated. On examination it was found that the tongue was very large, the mouth was open, the child pale, the skin a parchment colour and branny to the touch, and the hair dry. He had an "old man" appearance, with a large abdomen, umbilical hernia and thick neck. The limbs were short and he was somewhat dwarfed. the thumbs were thick. His tonsils were somewhat enlarged. The Wassermann test gave no reaction. The child was now having 0·01 gramme (one-sixth of a grain) of thyreoid extract three times a day and 0·3 gramme (five grains) of iron and ammonium carbonate three times a day. His skin was less dry and his hair softer. He was losing the parchment colour and was taking more notice and moving about more freely than in the past.

(To be continued.)

MEDICO-POLITICAL.

THE Honorary Secretary of the Queensland Branch of the British Medical Association has asked that the attention of members be directed to By-Law 87*a* of the Queensland Branch regarding the administration of anæsthetics. The by-law is as follows:

> Where a legally qualified medical practitioner is available, no member shall be a party to, or in any way associated with, the administration of a general anæsthetic to any patient unless such general anæsthetic is administered by a legally qualified medical practitioner.

NOMINATIONS AND ELECTIONS.

THE undermentioned has applied for election as a member of the New South Wales Branch of the British Medical Association:

Terrey, Bruce Corbett, M.B., B.S., 1933 (Univ. Sydney), Coraki.

The undermentioned have been elected members of the Victorian Branch of the British Medical Association:

Finger, Alan Henry, M.B., B.S., 1934 (Univ. Melbourne), Royal Melbourne Hospital, Melbourne, C.1.

Goldenberg, Myer, M.B., B.S., 1934 (Univ. Melbourne), 6, Goathlands Street, E. St. Kilda, S.2.

Panting, Rona May, M.B., B.S., 1934 (Univ. Melbourne), Royal Melbourne Hospital, Melbourne, C.1.

Youngman, Norman Vincent, M.B., B.S., 1935 (Univ. Melbourne), Royal Melbourne Hospital, Melbourne, C.1.

Shatin, Roman, M.B., B.S., 1935 (Univ. Melbourne), 84, Broadway, Elwood, S.3.

Skewes, David Buick, M.B., B.S., 1935 (Univ. Melbourne), 319 Sturt Street, Ballarat.

Avery, March Ermyntrude, M.B., B.S., 1935 (Univ. Melbourne), Green Acres, Berwick.

Bennett, Walter Hermiston, M.B., B.S., 1929 (Univ. Melbourne), 29, Inverness Avenue, Malvern, S.E.3.

Correspondence.

CLINICAL OBSERVATIONS ON BLOOD PRESSURE.

SIR: I have been interested to read the further correspondence from Dr. William P. Kelly relative to my clinical observations on blood pressure.

With any subject which can be tackled from so many different aspects it necessarily follows that there will be great diversity of opinions amongst toilers in different fields. Many new facts discovered by laboratory workers have to be modified and readjusted when applied to clinical medicine by the general practitioner, and it is only by cooperation and team work amongst the various branches of the profession that we can hope to reach definite conclusions.

There are numerous fascinating problems, such as "the man of ninety years of age with vessels which could not be compressed", quoted by Dr. Kelly. Another equally fascinating one is the individual in whom the diastolic pressure, according to our criteria, is zero; and these are encountered from time to time. It is inconceivable that a patient could exist with a diastolic pressure of "nil".

This brings us to the important point raised by Dr. Kelly as to what we are actually measuring when we record our sphygmomanometer readings. As he says, if we could finalize this question it would be a great advance.

One cannot help but quote an oft-repeated observation of the late Professor Sir Harry Allen, "that each discovery pushes the veil a little further back, but infinity lies beyond", and to think how aptly it fits the subject under discussion.

It has been most gratifying to me to find that others have continued the search following upon the recording of one's own experiences, and I trust that eventually something helpful will materialize.

In conclusion I should like to thank Dr. Kelly for his active interest in the subject and to express my appreciation of his forwarding me a copy of the last letter before its publication.

Yours, etc.,

ROBERT SOUTHBY.

164, Victoria Street,
North Melbourne, N.1,
January 19, 1936.

SYPHILIS IN HOT CLIMATES.

SIR: It has long been recognized that syphilis is not nearly so grave a disease in tropical countries, at least in regard to the later manifestations. Cutaneous vascular dilatation and sweating are important factors in helping to throw off the infective agents.

Lacapère, who speaks with authority concerning syphilis among the Arabs of north Africa, says: "Cutaneous lesions are frequently seen because the natives are dirty, in spite of the ritual ablutions, which are only a parody; they perform them with a handful of water; their skins are constantly soiled by dirt, pricked by insects and burrowed by the parasites of scabies. But if they remain sober in their habits, and abstain from alcohol, they never get grave syphilis of the nervous system, because they never develop patches of sclerosis, which are absolutely necessary for the retention of the parasite in the organism."

In colder countries the lesions of tuberculosis, active or treated, have a similar effect.

Yours, etc.,

J. MORRIS ROE.

Victory Chambers,
Queen Street,
Brisbane,
January 24, 1936.

Proceedings of the Australian Medical Boards.

QUEENSLAND.

THE undermentioned have been registered, pursuant to the provisions of *The Medical Acts*, 1925 to 1933, of Queensland, as duly qualified medical practitioners:

Baker, Ralph Alderton, M.B., B.S., 1912 (Univ. Adelaide), Townsville.
Butcher, Beresford James, M.B., B.S., 1934 (Univ. Melbourne), Brisbane.
Gallagher, Edward John, M.B., B.S., 1935 (Univ. Melbourne), Brisbane.
Kaye, Myer, M.B., B.S., 1935 (Univ. Melbourne), Brisbane.
Kurrle, Geoffrey Rosevear, M.B., B.S., 1935 (Univ. Melbourne), Brisbane.
McAllister, Robert John, M.B., B.S., 1935 (Univ. Melbourne), Brisbane.
McMahon, Patrick Joseph, M.B., B.S., 1934 (Univ. Sydney), Atherton.
Moffatt, James Campbell, M.B., B.S., 1935 (Univ. Sydney), Brisbane.
Myers, Arthur Mervyn, M.B., B.S., 1933 (Univ. Adelaide), Townsville.
Outhred, Kenneth Gilbert, M.B., B.S., 1934 (Univ. Melbourne), Brisbane.
Pasquarelli, Guiseppe, M.B., B.S., 1935 (Univ. Melbourne), Brisbane.
Theile (*née* Macourt), Alice Margaret, M.B., 1931 (Univ. Sydney), Maryborough.
Wallace, Robert, M.B., B.S., 1934 (Univ. Melbourne), Rosewood.
Walsh, John Owen, M.B., B.S., 1934 (Univ. Sydney), Brisbane.
Wilson, Milford Graham, M.B., Ch.M., 1926 (Univ. Sydney), Toowoomba.

Diary for the Month.

FEB. 11.—New South Wales Branch, B.M.A.: Executive and Science Committee.
FEB. 14.—Queensland Branch, B.M.A.: Council.
FEB. 18.—New South Wales Branch, B.M.A.: Ethics Committee.
FEB. 19.—Western Australian Branch, B.M.A.: Branch.
FEB. 22.—Tasmanian Branch, B.M.A.: Annual Meeting.
FEB. 25.—New South Wales Branch, B.M.A.: Medical Politics Committee.
FEB. 26.—Victorian Branch, B.M.A.: Council.
FEB. 27.—South Australian Branch, B.M.A.: Branch.
FEB. 28.—Queensland Branch, B.M.A.: Council.
MAR. 2.—New South Wales Branch, B.M.A.: Organisation and Science Committee.
MAR. 3.—Tasmanian Branch, B.M.A.: Council.
MAR. 4.—Victorian Branch, B.M.A.: Branch.
MAR. 4.—Western Australian Branch, B.M.A.: Council.
MAR. 5.—South Australian Branch, B.M.A.: Council.
MAR. 6.—Queensland Branch, B.M.A.: Branch.
MAR. 10.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
MAR. 10.—New South Wales Branch, B.M.A.: Ethics Committee.
MAR. 10.—Tasmanian Branch, B.M.A.: Branch.

Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, *locum tenentes* sought, etc., see "Advertiser", pages xvi-xviii.

ROYAL NORTH SHORE HOSPITAL OF SYDNEY, NEW SOUTH WALES: Assistant Medical Superintendent, Relieving Honorary Assistant Radiographer.
SAINT VINCENT'S HOSPITAL, SYDNEY, NEW SOUTH WALES: Honorary Clinical Assistant.
SYDNEY HOSPITAL, SYDNEY, NEW SOUTH WALES: Honorary Assistant Radiotherapist.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment referred to in the following table without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

BRANCHES.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 135, Macquarie Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino. Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company Limited. Phœnix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association, Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Brisbane Associate Friendly Societies' Medical Institute. Chillagoe Hospital. Richmond District Hospital, North Queensland. Members accepting LODGE appointment and those desiring to accept appointments to any COUNTRY Hospital, are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Lodge appointments in South Australia. All Contract Practice Appointments in South Australia.
WESTERN AUSTRALIAN: Honorary Secretary, 205, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (Wellington Division): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Editorial Notices.

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